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COMMERCIAL FISHERIES REVIEW

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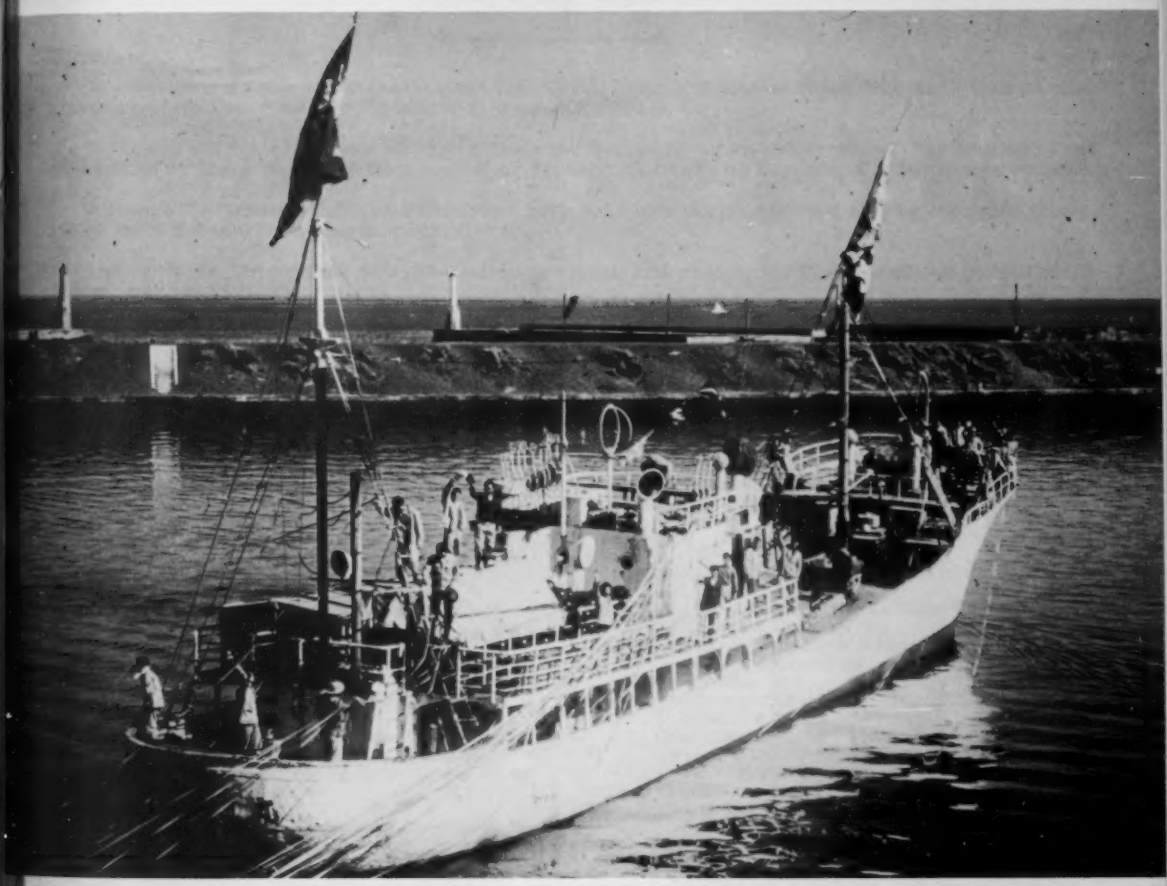

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United States Department of the Interior
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UNITED STATES
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COMMERCIAL FISHERIES REVIEW

A review of developments and news of the fishery industries
prepared in the BUREAU OF COMMERCIAL FISHERIES.

Joseph Pileggi, Editor

Address correspondence and requests to the: Chief, Branch of Market News, Bureau of Commercial Fisheries, U. S. Department of the Interior, Washington 25, D. C.

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RADIOACTIVITY IN FOODS

The amount of radioactivity now being found in food does not warrant any action by the Government, or any change in buying or food preparation habits of the United States consumer. If the situation should change, the public and appropriate public health officials at all levels of Government will be kept informed. Channels of communication already exist to assure that this is done.

Should protective measures ever have to be considered, the amount of radioactivity in the total diet, as consumed, could be substantially reduced by simple and ordinary sanitary precautions such as washing and peeling, and by proper care in the use of foods which are protected from fallout by tight, impenetrable packaging. (FDA Memo for Consumers, April 16, 1962, U. S. Food and Drug Administration.)

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ASPECTS OF WORLD TRADE OF INTEREST TO THE FISHERY INDUSTRIES[1]

By Arthur M. Sandberg*

In speaking about fish meal and oil, one of the industry members remarked that if there is ever an industry with an international look, this is it. The reference was to the menhaden industry, and its manufacture and sale of fish meal, oil, and solubles. Therefore, certain aspects of world trade are of concern and interest to the fishery industries.

World trade is a broad and complex subject so this article will be limited to a description of several major international trade organizations and some recent developments that are shaping foreign trade policies.

EUROPEAN ECONOMIC COMMUNITY

One of the important developments affecting world trade in fishery products is the formation of the European Economic Community or Common Market. This is already bringing about changes in world trade patterns. Six nations--France, the Federal Republic of Germany, Italy, Belgium, Luxembourg, and the Netherlands--have agreed to enter into a complete economic union. This union involves a promising market of about 170,000,000 people, one comparable in size to that in the United States.

Fig. 1 - The EEC unites six nations in an economic union known as the Common Market.

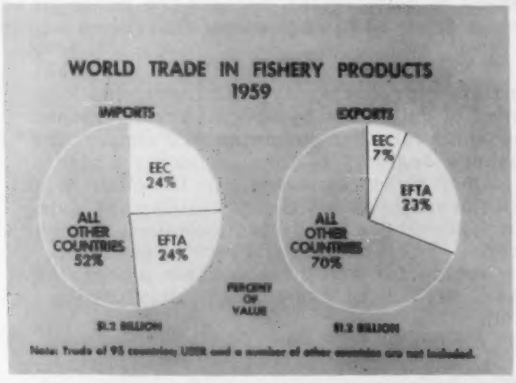

Fig. 2 - EEC (Common Market) accounts for 24 percent of world imports of fishery products and 7 percent of exports.

In terms of total dollar value of world fishery imports, the Common Market takes 24 percent of the total trade. It accounts for 21 percent of total United States exports of fishery products. In recent years, the bulk of United States exports to the Common Market have consisted of fish oils, amounting to some $8,000,000 to $10,000,000 annually.

1/Adapted from a statement at the National Menhaden Convention Sponsored by the Virginia Fishermen's Association, February 13, 1962, Old Point Comfort, Fort Monroe, Va.

* Trade and Tariff Specialist, Branch of Foreign Fisheries and Trade, Division of Industrial Research, U. S. Bureau of Commercial Fisheries, Washington, D. C.

U. S. DEPARTMENT OF THE INTERIOR
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The Treaty of Rome of March 27, 1957, provides for the gradual elimination of tariffs and quotas on trade among the six countries of the Common Market. Because the present individual tariffs of member countries differ widely in the level of duties, the treaty generally provides for setting up a single "average" common tariff on imports of products from outside the area. The new duties are scheduled to become effective gradually over a period of about 10 years, possibly by 1970.

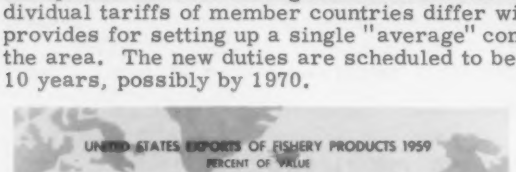

Fig. 3 - The European Common Market accounts for 21 percent of United States exports of fishery products.

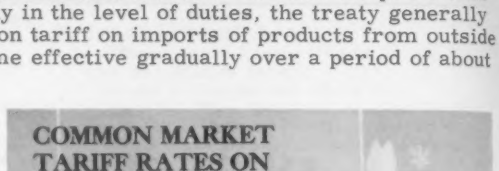

Fig. 4 - In the Common Market, present national duties on fillets will gradually adjust to a uniform level by 1970.

In setting up their external tariffs, the Common Market countries have decided that fish oils shall remain free of duty. Fish oils will benefit by much more favorable duty treatment than many other fishery products. The proposed duty on fish meal is 5 percent ad valorem. Under the gradual application of the duties, the present national fish meal duties would be lowered in Italy, West Germany, and France, but increased in Belgium, the Netherlands, and Luxembourg, until at the end of 10 years all would apply the 5 percent duty. Fish solubles would be duitable at 9 percent and whale oil at 2 percent. Proposed duties on canned fish will range from 18 to 25 percent; fish fillets will be 18 percent.

Normal trade with the Common Market in fishery products may be altered by the new level of duties and by special arrangements by which member countries will support the fishery segment of their economy under a common fisheries policy. On the other hand, it is possible that a higher standard of living may have beneficial effects on total fishery trade. For example, there are favorable prospects for an increase in the use of fish meal because of expanding poultry production.

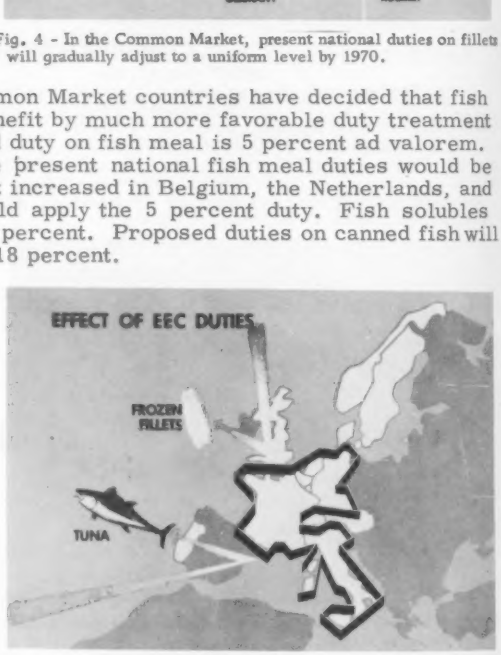

Fig. 5 - Increased Common Market import duties may divert present trade to other countries.

The Common Market countries, in their effort to promote growth and development, will develop a common fishery policy. This policy could provide for the mobility of labor and capital, supports to fisheries, special marketing schemes, fishing by vessels of one country in territorial waters of another, or grant permission for vessels to land their fish catches freely in another Common Market country. We do not know yet what special market or support devices might be established in the Common Market; these are to be decided upon in the next few years by the EEC Commission.

Recently the United Kingdom and Denmark petitioned for membership in the Common Market. The conditions under which these countries would be permitted entry are now being

negotiated. There is some question how the British Commonwealth countries would participate should the United Kingdom enter the Common Market. Assuming that the United Kingdom application will be approved, it might be expected that the 10 percent duty on United States fish oil imported into the United Kingdom would gradually be reduced to the free-of-duty level of the Common Market. Should the United Kingdom and Denmark become members, the Common Market would then encompass a trading area of about 250,000,000 people. Other countries also have expressed an interest in joining the Common Market.

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT

Another organization which is expected to play an important part in the integration of Europe is the Organization for Economic Cooperation and Development (OECD). In September 1961, the OECD was established with membership from 20 countries. The United States, Canada, the six Common Market countries, the United Kingdom, Norway, Iceland, Sweden, Denmark, Portugal, Switzerland, Austria, Greece, Spain, Turkey, and Ireland are members. Through cooperative actions, the OECD hopes to spur the economic growth of its members, to encourage worldwide trade and investment, and to aid the lesser-developed countries of the world in economic expansion.

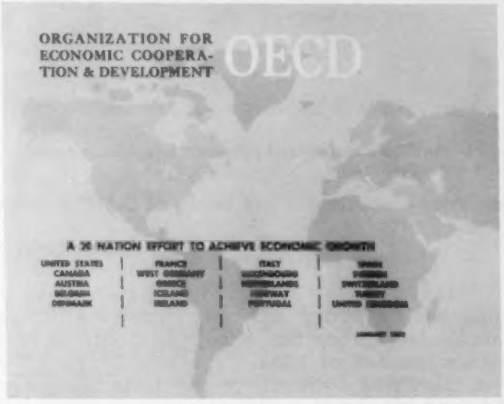

Fig. 6 - Through cooperative actions, the OECD will spur economic growth, encourage trade, and aid lesser-developed countries.

An OECD Fisheries Committee was established to carry out a program to promote the harmonious development of fisheries and to iron out trade problems. This Committee will have close links with the OECD Trade Committee and others dealing with economic policies. Since September 1961, the Fisheries Committee has met twice in Paris to consider such major trade problems as subsidies and supports, import restrictions, sanitary requirements, and marketing practices. A. W. Anderson, formerly Assistant Director of the U. S. Bureau of Commercial Fisheries and now Regional Fisheries Attache in Copenhagen, is vice-chairman of the OECD Fisheries Committee.

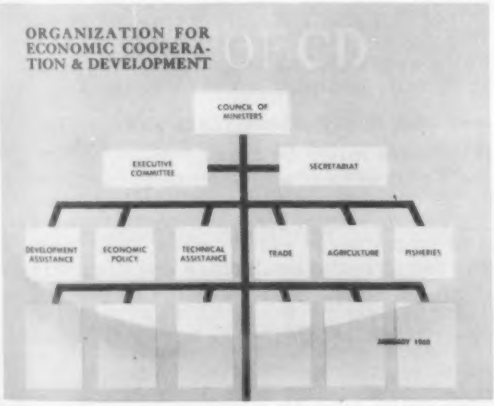

Fig. 7 - A Fisheries Committee in OECD will work closely with other committees concerned with economic policies of member countries.

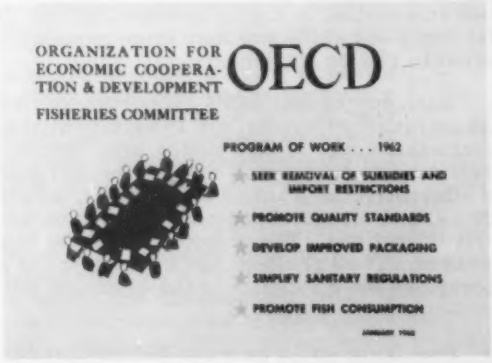

Fig. 8 - The OECD Fisheries Committee will promote harmonious development of fisheries.

GENERAL AGREEMENT ON TARIFFS AND TRADE

Some 40 countries of the world have banded together in an international forum for the operation and administration of trade agreements. This organization is known as the General Agreement on Tariffs and Trade (GATT). The member countries account for about 85 percent of total world trade. Under the GATT, six rounds of trade agreement negotiations have been held. The last round of tariff negotiations was recently concluded in Geneva; the details of negotiations between the Common Market and other member countries, including the United States, were reported previously in this periodical.1/

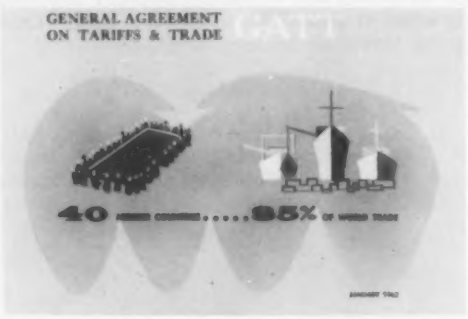

Fig. 9 - GATT is a multilateral agreement to reduce trade barriers and expand trade.

Apart from bargaining for mutual reductions in import duties, other GATT activities include actions to reduce or eliminate quotas, internal levies, discrimination, subsidies, customs formalities, and other obstacles to trade. Commitments under the GATT are designed to maintain the value of tariff concessions and expand international trade.

OUR CHANGING TRADE POLICIES

Many articles in the press lately have covered the request the President made to the Congress for broad authority to reduce United States import duties in exchange for equivalent concessions from the European Common Market and other countries. Known as the "Trade Expansion Act of 1962," the bill (H. R. 9900) being considered by Congress would grant the President new authority to negotiate trade agreements, to lower existing duties by 50 percent, and even eliminate tariffs on products now dutiable at 5 percent or less and on products where the United States and the Common Market account for 80 percent of total world trade. It would also allow negotiation on broad categories of goods rather than on an item-by-item basis as in the present negotiating authority.

Safeguards like the "escape clause" and "peril point" would be retained. But the new definitions are based on determination of significant idling of plants and workers as the result of increased imports because of reductions in duty. Temporary tariff relief could be granted, where essential, to assist those industries injured by a sudden influx of imports. A reserve list would set aside any item from negotiations if it were determined not to be in the best interest to reduce its duty.

Recognizing that some United States firms and workers might be hurt by lower duties and increasing imports, the President also asked the Congress for authority to give adjustment assistance. Under such a program, United States enterprises idled by increased imports may be assisted in meeting import competition and making economic adjustments. As an alternative to granting tariff relief, an expanded program of tax relief, loans, loan guarantees, and technical assistance would be provided to aid firms to modernize and diversify their operations. The objective would be to strengthen the efficiency of affected firms and workers. The President has stated that the adjustment assistance would be designed to strengthen the efficiency of the economy, not to protect inefficiencies. The accent is on adjustment, not assistance.

Provision would be made for various forms of tax relief such as a special carry-back of current operating losses from 3 to 5 years. Long-term loans at as low as 4 percent interest and for terms up to 25 years would be made where necessary to provide financial assistance if other financing were not available. Readjustment allowances would be given to workers idled by imports. Workers would get up to 65 percent of their average weekly wage for up

1/See Commercial Fisheries Review, June 1962 pp. 1-6.

to 52 weeks, vocational education and training for higher or different skills, or financial aid to relocate to a different place.

CONCLUSION

This briefly outlines some of the organizations and international developments influencing and shaping United States foreign trade policies. Resulting actions will have a direct bearing on many United States fishing industries. The industrial fisheries would be well advised to carefully consider these developments and their probable effect on the fish meal and oil industries.

ALASKA FUR SEAL GUARD HAIR HAS MANY USES

Industry finds more and more uses for materials that might otherwise be wasted; one of the most recent examples is Alaska fur seal guard hair, which is now an article of commerce sold for a number of purposes.

Almost all fur-bearing animals have two kinds of hair--fine fur, which is very smooth and silky, and guard hair, which is longer and tougher than the fine fur and serves to protect it. Most animals have far less guard hair than fine fur, and in mink and silver fox wraps, the guard hair (until it breaks off) adds a fashionable note. But the guard hair of the Alaska fur seal is very dense and must be removed to produce the beautiful furs required by the market. The process is still carried out by hand; men scrape the furs with curved, two-handled steel knives quite similar to the bone knives used by the ancient Egyptians for removing hair from animals. About 70,000 pounds of Alaskan seal guard hair becomes available every year.

For many years, guard hair was only a waste product, bringing at best a few cents a pound on the open market. Then, both in Europe and in the United States, it came to be used as an ingredient of sweaters, thick fabrics, and skirts. Manufacturers were able to point to the content of genuine guard hair of the Alaska fur seal as a sign of great luxury, and the market value increased spectacularly--but it also fluctuated wildly, in response to the whims of fashion.

To stabilize the market, the producers have developed new uses for guard hair, taking advantage of its unique properties--primarily a "three color" appearance. The very tip of a guard hair is white; the predominant color is glossy black, and there is a straw-colored root. Incorporated in decorative papers, the graceful arch of the guard hair creates a unique, soft textural background of random patterns. Proposed applications include stationery, cover stock for books, reports, etc., wallpaper, lampshades, and underlays for countertops. (Industrial Bulletin, April 1961.)

USE OF ENVIRONMENTAL AND ECONOMIC FACTORS TO CHECK BIOLOGICAL FLUCTUATIONS IN MAINE LOBSTER POPULATION

By Robert L. Dow*

After two decades (1919-1940) of low fishing intensity (6.5 million pounds annually), the Maine lobster (Homarus americanus) fishery expanded rapidly (15.8 million pounds annually) during World War II and subsequent years (1941-1951) to enter a period of high yield (22.4 million pounds annually). The years with greater landings were associated with intensive fishing activity. Since 1919, an unaccounted for variance in the yield of the fishery has not exceeded ± 10 percent. Biological sampling indicates that the catch now consists of approximately 90 percent newly-recruited post-moult lobsters.

Fig. 1 - A Maine fisherman unloads his catch of lobsters at a selling dock.

The influence of environmental and economic factors on landings from the fishery has been reported by several investigators. Average April-May sea water temperature is associated with the number of lobsters available to the post-moult July-August fishery. The July-August supply regulates the summer price which, in turn, influences fishing intensity during both the lobster seasonal year (July-June) and the calendar years following (R. L. Dow 1961).

Since it is possible to predict landings and, by inference, available abundance, by the measurable variables: temperature, landed value, and fishing intensity, any significant (± 10 percent) deviation from prediction is indicative of probable biological changes; i.e., frequency of moult, natural mortality, or year-class survival.

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U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
SEP. NO. 654

Fig. 2 - Typical Maine boat hauling in a lobster trap.

Subnormal winter-spring sea water temperature is associated with delayed moult and a depressed first-half lobster-year catch. Recovery of the fishery during the second-half of the lobster year or during the following calendar year indicates that the decline in the rate of recruitment caused by retarded growth has been temporary only. Failure of recovery despite a return to favorable water temperature levels would serve to warn of the probability of a more significant biological change. The effect of this modification might not become evident, in the case of year-class survival, for a period of five years or more, while any change in the rate of natural mortality would require confirmation by other evidence.

The table shows the order of magnitude relation among the several variables and landings during the decade 1952-1961, is therefore proposed as a means of checking the biological fluctuations in the Maine lobster population.

The Order of Magnitude Relation in the Maine Lobster Fishery Among the Several Variables and Landings in the Decade 1952-61

Current Year				Following Year		
Year	April-May Sea Water Temp.	July-Aug. Lobster Landings	July-Aug. Price	Year	Jan.-June Lobster Landings	Jan.-Dec. Lobster Landings
	°F.	Million Lbs.	¢/Lb.		(Million Lbs.)	
1953	50.0	8.1	33	1954	3.6	21.7
1955	48.6	8.3	32	1956	3.2	20.6
1954	48.5	8.1	34	1955	3.8	22.7
1957	48.0	7.8	35	1958	4.4	21.3
1952	47.6	7.1	42	1953	4.1	22.3
1960	46.6	6.5	44	1961	4.3	20.9
1958	45.8	6.0	50	1959	4.4	22.3
1956	45.0	5.1	50	1957	4.1	24.4
1959	44.8	5.3	51	1960	4.5	24.0
1961	44.5	4.7	59	1962	-	-

In 1961, the lowest May sea water temperature since 1943 retarded the rate of sublegal lobster recruitment by approximately 6.5 percent below that predicted. The duration of this influence may be appraised by the behavior of the fishery during 1962 and subsequent years.

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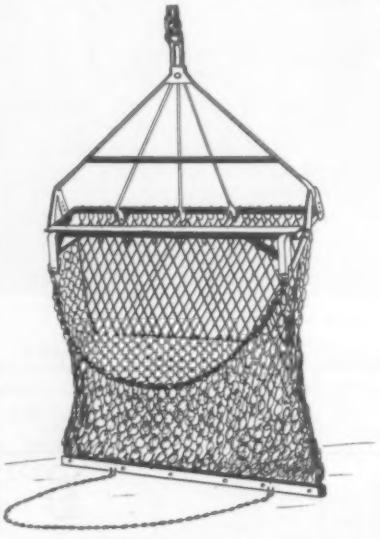
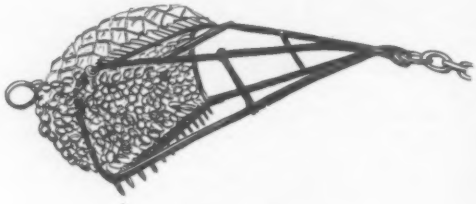
COMMON DREDGES

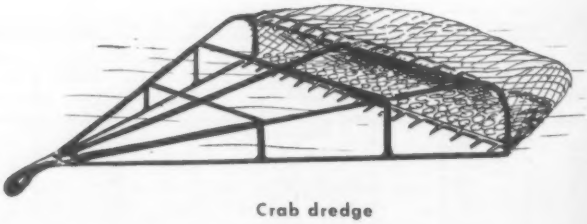
The common dredge consists of a metal triangular or oblong frame, to which is attached a bag net made of iron rings, S-hooks, and/or cotton cording. The frame is equipped with a raking bar generally with teeth on the lower edge. The implement is used in gathering shellfish (oysters, crabs, and scallops). There is really no standard design for a dredge; each fisherman has his own ideas on what makes an efficient gear and modifies and alters the basic design to suit himself. Dredges are of various sizes and dimensions.



Scallop dredge



Oyster dredge



Crab dredge

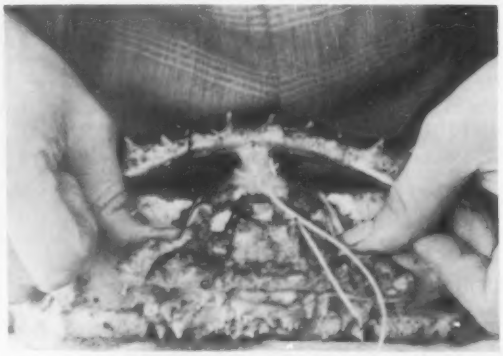
Note: Excerpt from Circular 109, Commercial Fishing Gear of the United States, for sale from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., single copy, 40 cents.

TRENDS AND DEVELOPMENTS

Alaska Fisheries Investigations

ALASKA STATE-FEDERAL COOPERATIVE KING CRAB RESEARCH:

The king crab biological research programs of the Alaska Department of Fish and Game at the Kodiak Research Center and the U. S. Bureau of Commercial Fisheries Biological Laboratory at Auke Bay have been coordinated. The Bureau Laboratory's research efforts are to be concentrated on the continental shelf west of Chirikof Island and the Alaska Center's efforts are to be concentrated on studying the Kodiak stocks of



Tagging king crab in Alaska.

king crab. One of the research groups also is to place a research biologist aboard the Bureau of Commercial Fisheries exploratory fishing vessel that will be working Portlock Bank (near Kodiak) this summer. Alaska Department biologists will continue to handle collection of all king crab tags.

* * * * *

LITTLE PORT WALTER SALMON STUDIES:

At Little Port Walter the peak migration of pink and chum fry occurred in Sashin Creek between April 25 and May 25. By May 25 the total fry escapement was 5.7 million pinks and 123,000 chum fry. The numbers of each species leaving Sashin Creek this spring will be in close agreement with the abundance of pre-emergent fry estimated in late March. At that time about 6.3 million pink and 123,000 chum pre-emergent fry were estimated to be present in Sashin Creek spawning beds. The 1962 migration from Sashin Creek is the largest on record for both pink and chum fry since enumeration started on pink fry in 1941 and chum fry in 1943. The largest previous recorded migration of pink fry occurred in 1960 with 5.3 million and chum fry in 1945 with 38,000.

Fish eggs and "fry," or baby fish.

Twelve SCUBA-equipped biologists from the Auke Bay Laboratory participated in an intensive survey of the Sashin Creek estuary and obtained information on the ecology, distribution, movement, and school-size of pink salmon fry, both in the estuary and along the coast of Chatham Strait. An intense phytoplankton bloom was under way in the inner bay, limiting visibilities to 4 feet or less. Nearly all fry were situated in the upper 2 feet of the water column, and fry were infrequent at depths of 3 feet or greater. The larger schools of fry seemed to be farther from the shore and in deeper water than the smaller schools. Foraging individuals appeared to be giving most attention to the surface and the upper four feet. Potential predators noted in the upper four feet included juvenile coho salmon, kelp greenling, adult herring, and whiting. All, however, were in such small numbers that they would be incapable of taking large numbers of fry. Deeper dives in the outer harbor and along the coast disclosed a surprising dearth of fish at depths between 30 and 80

SCUBA divers have learned many things about fish and fishing.

feet. Whether this scarcity is seasonal or permanent is not known at present.

* * * * *

AUKE BAY ESTUARY SALMON STUDIES:

Migrant salmon indexing experiments in Auke Creek and Bay were nearly complete in May 1962. Preliminary analyses indicate: (1) Over 65,000 pink salmon fry entered the bay from Auke Creek (75 percent between May 6-14). (2) Over 30,000 pink migrants were captured in 2 floating traps in Auke Bay (80 percent between May 12-18). It is believed that these fry were predominantly from Auke Creek. (3) A reliable method of counting fry migrants photoelectrically was developed. Auke Creek experiments for pinks resulted in 1 out of every 2, 3, and 9 fry being recorded by the counter on the aperture and photocell positions; for sockeye smolt in Auke Creek, 1 out of every 2 smolt were counted by the photocell. (4) Salt-water holding pen experiments for pink salmon entering Auke Bay will continue as long as possible. The first experimental group of Auke Creek migrants was placed in the pens April 1, and a weekly sample has been taken throughout the run. Weekly length frequencies are being obtained for each complete experiment, using a simple photographic technique developed for the purpose. Results indicate: (a) a highly favorable estuary environment (only one mortality attributable to a natural cause); (b) growth rates comparable to those obtained in similar experiments in Smeaton Bay near Ketchikan in 1956, 1957, and 1958. (5) Sockeye smolts leaving Auke Lake reached a peak on May 21, which is 2 weeks later than the peak in 1961. The run through May was estimated in excess of 40,000 sockeye smolts.

* * * * *

HERRING SPAWNING STUDIES:

Herring spawning took place in Auke Bay during late April and early May. The spawning in 1962 appears to be somewhat lighter than usual, although it was spread over a large area. The crop of rock weed (a preferred substrate for spawning) appeared to be considerably smaller than usual this year which may be reflected in the widespread nature of the spawning activity.

Herring eggs deposited in April and early May began hatching toward the end of May. Efforts to take herring larvae with a high-speed plankton sampler have not yet been successful. Since the samplers used have shown considerable success in capturing other fish larvae and juveniles of considerably larger size than herring larvae, it would appear that the herring larvae were not accessible in Auke Bay. Either they are too close to the beach or at too great a depth to be successfully sampled with the present procedure, or they may have been carried out of the bay by tidal currents immediately after hatching.

* * * * *

KARLUK LAKE SOCKEYE SALMON STUDIES:

Sockeye salmon smolt catches out of the Karluk River were extremely light until May 18 when the out-migration increased in magnitude. The first few adult sockeye salmon appeared at the Karluk River weir site on May 16, which is almost 2 weeks earlier than in 1960 and 1961. Fry migrations into Karluk Lake from Meadow Creek and Grassy Point peaked in early May. Based upon a mark and recovery method using stained fry, Meadow Creek contributed about 275,000 fry and Grassy Point about 234,000. The Grassy Point fry run in 1962 is about one-half of that of 1961.

Alaska

DOUGLAS MARINE STATION BEING SET UP:

Plans were being completed in May 1962 for setting up the Douglas Marine Station of the Marine Science Institute, University of Alaska. It will be located in the former Mayflower School Building in Douglas, Alaska (near Juneau). The Station will be used as a research laboratory and graduate training school. Two oceanographers, both from Texas A. and M. are already there. Three additional researchers were expected.

The research program for the new Marine Station is expected to be well under way by fall. The Director of the Marine Science Institute stated that he hoped the Station would have a research vessel in the near future.

American Fisheries Advisory Committee

INTERIOR DEPARTMENT ADVISORY GROUP VIEWS STATUS OF FISHERIES:

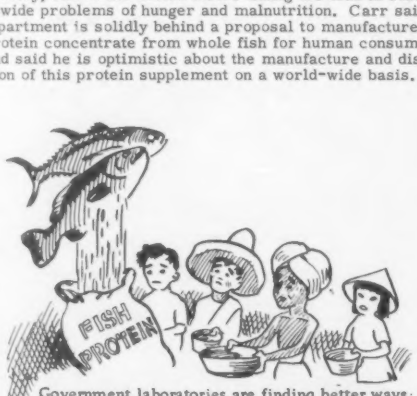
A searching look at the present status and future of the Nation's commercial fisheries was taken by the American Fisheries Advisory Committee at its 14th meeting, held May 24 and 25, 1962, in Washington, D. C. The meeting was opened by Frank P. Briggs, Assistant Secretary of the Interior for Fish and Wildlife, who called for serious deliberations by the Committee on problems facing the American fishing industry.

The Committee, an advisory group to Secretary of the Interior Stewart L. Udall, spent much of its session working as four study groups, composed of five members each. These groups assessed the Atlantic area, the Pacific area, the Gulf and Caribbean area, and the Inland areas, reporting to the full Committee and the Bureau of Commercial Fisheries on the current status of the fisheries in those areas and what the situation is likely to be in the immediate future and in 1975.

Significant among the findings were the growing effect of international activities upon the fisheries and the need for long-range planning. The increasing amounts of fishery products being imported into the United States, the competition with other nations for the resources of the sea, and the need for using presently untapped fish species also were stressed.

The groups also recommended to the Bureau of Commercial Fisheries an acceleration of its marketing program. The Committee felt that some United States markets lost to imports could be regained by an aggressive promotion of fishery products and that the per capita consumption of fish in the United States could be increased through such means as consumer education on the nutritional value of fish. The need for improved and consistent quality also received considerable attention.

Under Secretary of the Interior James K. Carr addressed the meeting and emphasized the potential of increased fish production as a means of utilizing all marine resources, of providing an opportunity for tremendous expansion of the fishing industry, and of the United States taking the lead in solving world-wide problems of hunger and malnutrition. Carr said the Department is solidly behind a proposal to manufacture fish protein concentrate from whole fish for human consumption and said he is optimistic about the manufacture and distribution of this protein supplement on a world-wide basis.



Government laboratories are finding better ways of using proteins from fish and fish products.

The Bureau of Commercial Fisheries described its work in the fish protein concentrate field. The Bureau is exploring various methods for manufacturing the concentrate, including chemical and other extraction processes that have shown promise. The Bureau's preliminary findings indicate that fish protein concentrate is a cheap, highly nutritional, easily stored, and transported product with a variety of uses.

America belongs to nine International Commissions dealing with the produce of the sea.

Among other Bureau programs reviewed for the Committee were the Bureau's participation in the Tropical Atlantic Oceanography Survey, its vessel construction differential subsidy program, its student fellowship program, and its long-range program planning.

Antarctica

FISHERIES AND OCEANOGRAPHY INCLUDED IN RESEARCH VESSEL "ELTANIN" STUDIES:

On the first leg of her voyage to Antarctica to begin scientific operations in polar waters, USNS Eltanin left New York on May 23, 1962, for Valparaiso, Chile. In addition to regular scientific studies that can be made during the voyage, the ship will make nine special stops between Panama and Valparaiso for oceanographic studies related to Antarctic research. The vessel was expected to arrive in Valparaiso in late June.

USNS Eltanin is a floating research laboratory maintained by the National Science Foundation. Scientific projects carried out aboard the ship are funded and coordinated by the Foundation, and operation of the ship is by the Military Sea Transportation Service

On her cruise southward, the Eltanin will make two major stops in the Peru-Chile trench, where bottom trawls will be made by the University of Southern California marine biology group aboard and piston cores

Oceanographic Stations USNS Eltanin (May-June 1962).

will be obtained by Florida State University personnel. The Florida State group will obtain piston cores at three additional locations, and at all nine stops hydrographic stations will be made for Texas Agricultural and Mechanical College scientists.

Because of the interest expressed in these studies, the voyage has been designated Cruise 3 of the Eltanin to indicate that scientific observations are an important mission of the voyage.

Cruise 2, the major shakedown cruise of the ship following her conversion for research purposes, was made between March 15 and April 16, 1962, between New York and an area in the Labrador basin near Greenland. The area was chosen to duplicate as closely as possible Antarctic conditions, and at the same time to obtain useful scientific data.

Only limited oceanographic studies had previously been made in the area at that time of year.

Marine biology work was carried out by the University of Southern California, with a major biological station made. Nine complete hydrographic stations were obtained by Lamont Geological Observatory in a network from the southern tip of Greenland to Labrador, from which a delineation of water masses and ocean currents was accomplished. Lamont microbiologists made continuous studies of primary productivity of plankton of the near surface waters en route.

Cruise 1 of the Eltanin took place briefly in late February and early March 1962 to test scientific equipment.

Note: See Commercial Fisheries Review, October 1961 p. 9, August 1961 p. 16, June 1961 p. 15.

California

EXPLORATORY FISHING FOR PINK SHRIMP OFF NORTHERN AREA:

M/V "Alaska" Cruise 62-A-2 (April 17-May 29, 1962): Exploratory fishing to locate concentrations of pink shrimp (Pandalus jordani) in the coastal waters off central and northern California from Avila to Crescent City was the principal objective of the cruise by the California Department of Fish and Game research vessel Alaska. Other objectives were to determine size, sex, and weight of shrimp from different areas; to count and weigh incidental fish by species; and to obtain bottom temperatures in shrimp-fishing areas.

A total of 188 tows were made with a 20 x 6 foot beam trawl with $1\frac{1}{4}$-inch mesh netting. The tows lasted 20 minutes. Sixty-one tows were in Area A from the California-Oregon border to Mad River; 51 tows in Area B-1 from Big Flat to Laguna Point; 43 tows in Area B-2 from Salt Point to Bodega Head; and 31 in Area C from Pt. San Luis to Pt. Sal.

Fig. 1 - Area A.

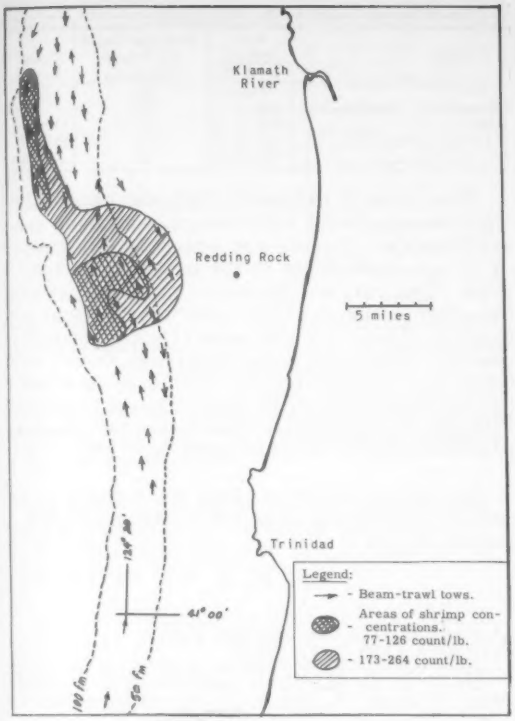


Fig. 2 - Area A.

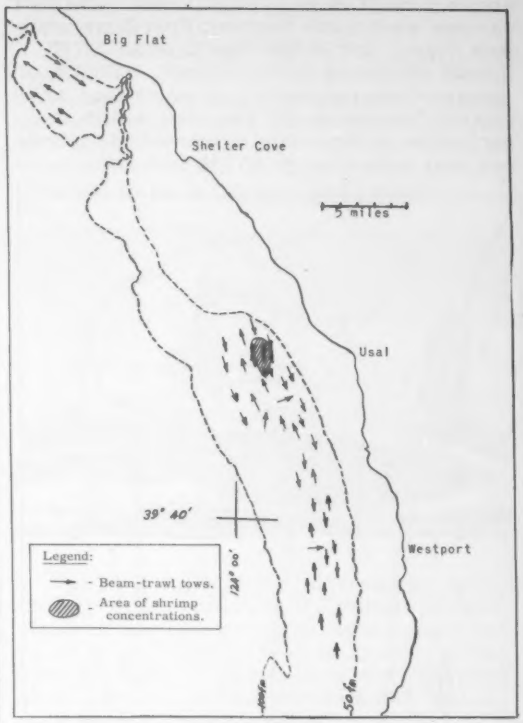


Fig. 3 - Area B-1.

The best shrimp catches in Area A were off the Klamath River and Redding Rock in 45 to 82 fathoms. The heaviest concentrations of shrimp were west and southwest of Redding Rock where 20-minute tows yielded up to 600 pounds. This bed was approximately 17 miles long and from 1 to 6 miles wide. Within the perimeter of the schools, 19 tows yielded shrimp at an average rate of 819 pounds per hour with a range of 105 to 1,800. The largest shrimp (mostly 2-year-olds) were generally in the deeper waters and outside the younger ones (1-year-olds). There appeared to be a definite separation by year-class. Within the area where the older shrimp were concentrated, they averaged 99 per pound (heads on) with a range of 77-126. Where the younger shrimp were concentrated they averaged 225 per pound with a range of 173 to 264. No shrimp concentrations were found between Pt. St. George and the Calif.-Oregon border. One tow off Brookings yielded 125 pounds of shrimp in 20 minutes.

Shrimp were difficult to find in Area B-1, and only one small concentration was located off Usal in 62 to 70 fathoms. The bed measured approximately $1 \times 2\frac{1}{4}$ miles. The catch rate there ranged from 525 to 1,800 pounds per hour with an average of 925. No shrimp were caught in 8 tows off Big Flat and 12 off Westport.

In Area B-2, a narrow concentration of shrimp was found between the Russian River

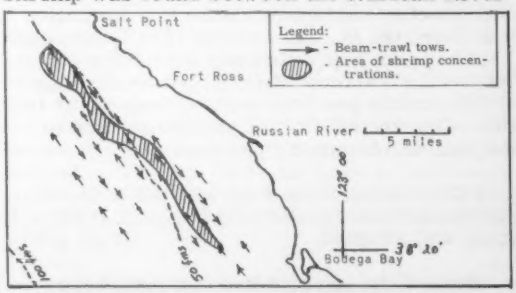


Fig. 4 - Area B-2 (Figs. 1-4 are all beam-trawling station locations of M/V Alaska Cruise 62-A-2).

and Salt Point in 44 to 56 fathoms. The best catches were made between Fort Ross and Salt Point. One of the tows produced 740 pounds of shrimp in 20 minutes. The school measured approximately 17 miles long and about 0.7 miles wide. Ten tows within the perimeter of the school produced 548 pounds per hour with a range of 138 to 2,220.

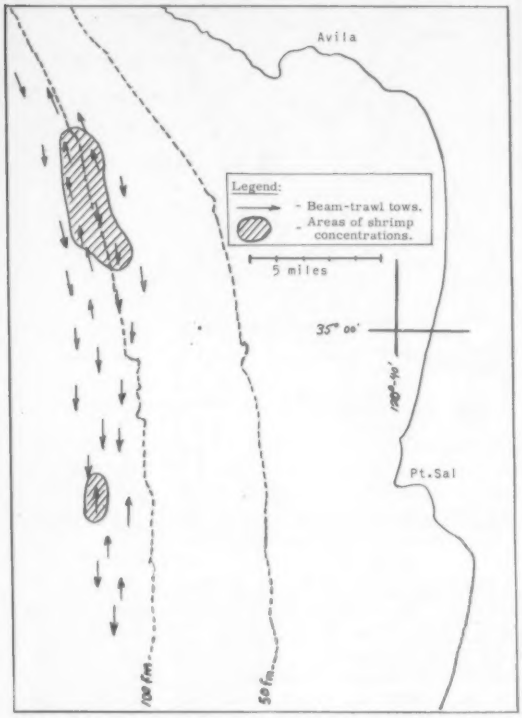


Fig. 5 - M/V Alaska Cruise 62-A-2, Area C. Location of beam trawl tows.

Area C did not yield shrimp in commercial quantity although a minor concentration was found off Pt. San Luis in 95-133 fathoms. This bed was approximately 1.5 x 5.5 miles. Six tows made from it produced an average of 123 pounds per hour with a range of 93 to 183. One tow off Pt. Sal yielded shrimp at the rate of 111 pounds per hour.

Fifty shrimp from each tow made on the shrimp beds were classified by sex, measured, and weighed.

Most of the females had completed spawning and by the latter part of May very few females were carrying eggs.

Type of Shrimp Caught by the M/V Alaska on Cruise 62-A-2

Area	Age-group I	II	III	Average Count Per Pound, Heads-on	Count Range
	(Percent)			No.	No.
Klamath R.-Redding Rd.	54	41	5	160	77-264
Usal	84	14	2	166	133-198
Salt Pt. to Russian R.	91	9	0	170	156-197
Pt. San Luis	4	72	24	63	58-68

The catch of incidental fish was generally light because very little weight was used on the footrope. Counts and weights were taken of all species caught in the majority of the tows. The catches consisted primarily of hake (Merluccius productus), sand dabs (Citharichthys sordidus), slender sole (Lyopsetta exilis), rex sole (Glyptocephalus zachirus), Dover sole (Microstomus pacificus), splitnose rockfish (Sebastodes diploproa), and stripetail rockfish (Sebastodes saxicola). The latter two species predominated in Area C catches.

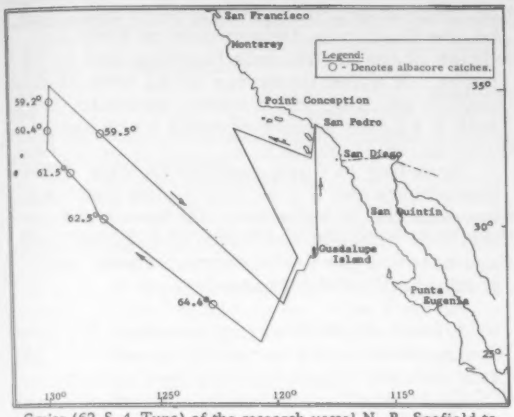
A total of 158 depth casts were made to record temperatures at the surface and the bottom at 158 stations.

* * * * *

ALBACORE TUNA MIGRATION STUDIES AND TAGGING:

M/V "N. B. Scofield" Cruise 62-S-4-Tuna (May 17-June 14, 1962): Intercepting albacore tuna schools and collecting biological data were the principal objectives of the California Department of Fish and Game research vessel N. B. Scofield during this cruise. The vessel operated in the high seas area off California and northern Baja California between latitudes 25° and 36° N. and offshore to longitude 130° W. The detailed objectives of the cruise were to: (1) intercept albacore schools approaching the Pacific coast fishing grounds prior to the fishing season and to determine their migration route; (2) collect oceanographic and biological data that may be related to albacore occurrence; and (3) tag albacore, and to take scales and stomach contents from those not tagged.

Adverse weather at the beginning of the cruise caused a revision of the cruise plan. Weather for the remainder of the trip permitted normal operations. Surface trolling gear was used during most of the 3,000-mile cruise. Nine albacore were caught. The first fish was caught 250 miles southwest of Guadalupe Island and the second, 600 miles west of Point San Quintin, Baja California. The other seven fish were caught in an area extending from 350 to 425 miles westward from



Cruise (62-S-4-Tuna) of the research vessel N. B. Scofield to study migrations of and collect oceanographic and biological data related to albacore tuna.

Point Conception, Calif. In addition, two albacore were lost while pulling in the trolling lines. Sea temperatures in the catch areas ranged from 59.2° F. to 64.4° F.

A sonic depth finder was operated whenever a fish struck the lines. It indicated fish were swimming at depths of 5 to 60 fathoms.

At 74 stations, approximately 40 miles apart, 450-foot depth readings and 10-meter Nansen bottle casts were made. A thermograph provided a continuous record of sea temperatures which ranged from 54° F. to 65.1° F. during the cruise.

Twelve night-light stations were occupied with Pacific sauries collected at every station. Myctophids were numerous, and squid were observed at many stations. Large jack mackerel, obtained by hook and line at two stations, were saved.

Several hours were spent fishing with a rod and electric reel while drifting over the Fieberling Guyot (32°24' N., 127°52' W.). The least depth found was 242 fathoms. Although the depth finder indicated fish were present, none was caught.

Scale samples were taken from all albacore, and several parasites and food items from the stomachs were saved for analysis. No fish were tagged during the cruise.

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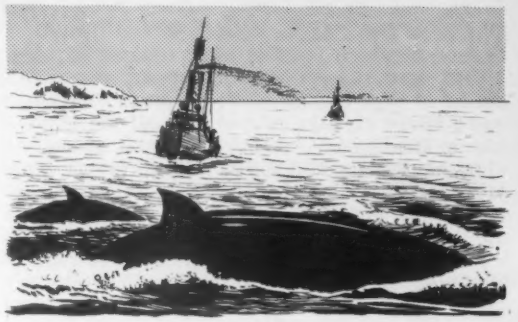
PELAGIC FISH POPULATION SURVEY CONTINUED:

Airplane Spotting Flight 62-4-Pelagic Fish (April 9-12, 1962): To determine the distribution and abundance of pelagic fish schools, the inshore area from the United States-Mexican Border to Half Moon Bay was surveyed from the air by the California Department of Fish and Game's Cessna "182" 9042T.



The first day's survey covered the area from Redondo Beach to the United States-Mexican Border; the visibility was poor because of low clouds. No fish schools were seen but a pod of 25 sea lions was observed about 2 miles north of Scripp's pier and 2 gray whales were seen heading north.

On the second day's survey, the coastline between Los Angeles Harbor and Pt. Piedras Blancas was covered. Scouting conditions were good after the fog dispersed. Twenty-six anchovy schools were sighted off Malibu pier and 28 north of Pt. Dume. One of these was strung out for one-half mile under a reddish-colored surface streak. Between Port Hueneme and Coal Oil Point, 125 anchovy schools were counted.

Some of the anchovy schools were under the natural oil slicks at Coal Oil Point. Two school groups off Gorda Pt. were large; one was 3 miles long by about one-half mile wide and estimated to contain between 200 and 300 schools of anchovies. The other large one was estimated to contain between 100 and 200 schools. Twenty-three anchovy schools were sighted off the pier at Cayucos and three off Pt. Buchon. Five gray whales were observed going north.

No survey was made on the third day because of fog and low overcast.

Surveying conditions were excellent on the last day of the flight and the area from Half Moon Bay to San Luis Obispo Bay was covered. Two anchovy schools were spotted off Moss Landing, 18 off Santa Cruz, 1 off Soquel Pt., and 8 in San Luis Obispo Bay. Seven gray whales, all going north, were sighted.

The survey was continued May 7-11, 1962.

Airplane Spotting Flight 62-5-Pelagic Fish: The area from Santa Monica to the United States-Mexican Border was covered on May 7, but surveying conditions were poor because of high clouds and low haze. There were some streaks of red tide off the Huntington Beach pier. Eleven schools of anchovies were sighted 2 miles north of Scripp's pier and 6 off Pacific Beach. Some of these were near the beach and very visible against the white sand bottom. Thirty-five sea lions were in the same vicinity. Most of the anchovy schools sighted in the San Diego area were near the mouth of the Tia Juana River.

On May 8, no flight was possible because of fog and overcast.

Scouting conditions in the area between Santa Monica and San Simeon on May 9 were good after the fog burned off. A total of 255 schools of anchovies were sighted between Malibu and Goleta, 4 in San Luis Obispo Bay, and 1 off the Cayucos pier. Some streaks of red tide were observed off Port Hueneme.

Surveying conditions were good in the area from Long Beach to the United States-Mexican Border on May 10. There were 31 anchovy schools between San Diego and the border, most near the mouth of the Tia Juana River.

In the area between Half Moon Bay and Pt. Sal, on May 11, 38 anchovy schools were counted between the Pajaro River and Soquel Point while flying north. On the flight south, the wind had increased and only a few schools were visible.

Note: See Commercial Fisheries Review, July 1962 p. 12.

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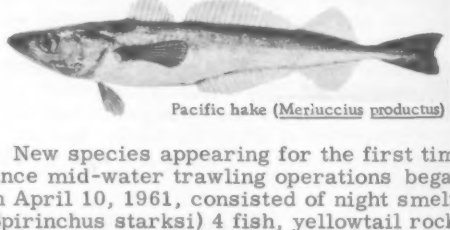
MIDWATER TRAWLING FOR SALMON FINGERLINGS CONTINUED: M/V "Nautilus" Cruise 62-N-1i, 5b, 5c-Salmon (April 30-May 4, May 14-17, May 21-25, 1962) and M/V "Al Larocca" Cruise 62-C-5d-Salmon (May 27-June 3, 1962): Midwater trawl operations in the Carquinez Strait to capture marked salmon fingerlings on their seaward migration were continued by the California Department of Fish and Game research vessels Nautilus and Al Larocca. A nylon midwater trawl with 25-foot square opening, and a cotton midwater trawl with a 15-foot square opening were used.

Trawling in Carquinez Strait was conducted between 8 a.m. and 3 p.m. and each tow was for 20 minutes. All tows were alternated between upstream and downstream, and between the north shore, center, and south shore of the channel.

A total of 257 tows completed in the Strait during these cruises yielded a catch of 1,783 king salmon (Oncorhynchus tshawytscha). Of the total king salmon caught, 94 were marked fish.

Other species appearing in the catch in significant quantities were: Pacific herring (Clupea pallasi) about 120,000 fish, northern anchovy (Engraulis mordax) about 70,000 fish, Sacramento smelt (Spirinchus thaleichthys) about 10,000 fish, king salmon (Oncorhynchus tshawytscha) 1,783 fish, striped bass (Roccus saxatilis) 1,223 fish, American shad (Alosa sapidissima) 616 fish, splittail (Pogonichthys macrolepedotus) 147 fish, northern midshipman (Porichthys notatus) 146 fish, and fine-scaled goby (Lepidogobius lepidus) 122 fish.



Pacific hake (Merluccius productus)

New species appearing for the first time since mid-water trawling operations began on April 10, 1961, consisted of night smelt (Spirinchus starksi) 4 fish, yellowtail rockfish (Sebastodes flavidus) 1 fish, and Pacific hake (Merluccius productus) 1 fish.

Note: See Commercial Fisheries Review, June 1962 p. 7.

Cans--Shipments for Fishery Products

BY AREAS AND QUARTERS, 1961 AND 1960:

In 1961, the Pacific Area or West (including Hawaii and Alaska) utilized 73.4 percent of the 126,017 short tons of steel used in the manufacture of cans for fishery products.

U. S. and Puerto Rico Shipments of Steel Used for Cans for Fishery Products, 1960 and 1961

Area	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Total	
	1961	1960	1961	1960	1961	1960	1961	1960	1961	1960
	(Short Tons)									
West 1/	14,571	16,090	30,801	30,540	27,538	23,776	19,581	17,960	92,491	88,366
East 2/	7,664	5,311	8,179	6,546	7,170	11,854	7,067	7,257	30,080	30,968
Central 3/	737	622	1,191	1,451	678	1,725	840	797	3,446	4,595
Total	22,972	22,023	40,171	38,537	35,386	37,355	27,488	26,014	126,017	123,929

1/Includes Hawaii and Alaska.
2/ " Puerto Rico and South Atlantic.
3/ " Gulf States.
Note: Statistics cover all commercial and captive plants known to be producing cans. Reported in base boxes of steel consumed in the manufacture of cans, the data for fishery products are converted to tons of steel by using the factor: 23.0 base boxes of steel equal one short ton of steel.

The bulk of the fish-canning facilities are located in the Pacific Area. The Pacific Area was followed by the Eastern Area (New England, Middle Atlantic, South Atlantic, and Puerto Rico) with 23.9 percent. The Central Area (including the Gulf States and Inland States) used only 2.7 percent.

The over-all 1961 total was up 1.7 percent from the amount used in 1960. An increase of 4.7 percent in the amount of steel used for cans in the Pacific Area was partly offset by a drop of 2.9 percent in the amount used in the Eastern Area and a decline of 25.0 percent in that used in the Central Area. The increase in the Pacific Area was due to greater packs of tuna and salmon. The decline in the Eastern Area was accounted for by a very light pack of Maine sardines. A substantial drop in the pack of canned shrimp was responsible for the drop in the Central Area.

During the second quarter of 1961, when shipments of steel for the manufacture of cans for fishery products were heaviest for all areas, canneries in the Pacific Area received 33.3 percent of the total amount they consumed, while the Eastern Area received 27.2 percent, and the Central Area received 34.6 percent.

Note: See Commercial Fisheries Review, April 1962 p. 12, August 1961 p. 21.

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JANUARY-MARCH 1962:

The amount of steel and aluminum consumed in the manufacture of cans shipped to fish and shellfish canning plants during January-March 1962 was 10.6 percent above that used during the same period in 1961. Prior to this year, these figures covered only tinplate cans, but beginning with January 1962 aluminum cans are included.

During this period 584,135 base boxes of steel and aluminum were used, whereas in the same period of 1961 (when only tinplate was reported), 528,346 base boxes of steel were consumed in making cans shipped to fishery plants. The addition of the data on aluminum was only partly responsible for the increase in cans this year; most of the increase was due to greater packs of tuna, shrimp, and Maine sardines.

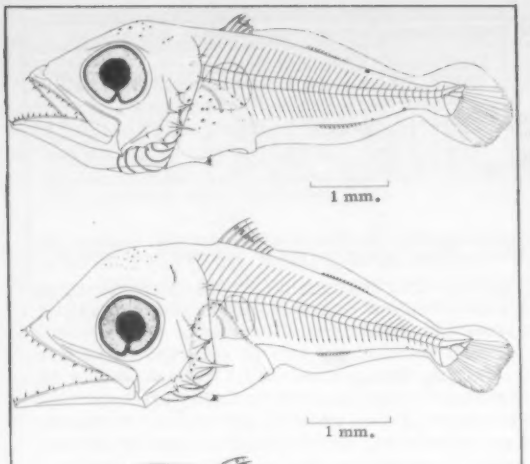
Central Pacific Fisheries Investigations

YOUNG TUNA COLLECTED FROM PREDATORS' STOMACHS:

The collection of larval and juvenile forms of tuna and tuna-like fish is one phase of the study to discover the spawning season and area of the South Pacific albacore tuna. During January-April 1962, the Charles H. Gilbert of the U. S. Bureau of Commercial Fisheries Biological Laboratory, Honolulu, in cooperation with Orsom III of the Institut Francais d'Oceanie, Noumea, New Caledonia, explored the intensively-fished albacore grounds of the South Pacific. Preliminary results of that expedition indicate that apex (highest form) predators may be the best collectors of juvenile tuna now available.

Examination of plankton tows from Ahipalaha I (the winter expedition's name after the Hawaiian word for albacore tuna) has so far yielded only one albacore larva. But five young albacore tuna estimated to range from 6 cm. to 9 cm. (about 2 to 3.5 inches) were obtained from stomach contents of two blue marlin, a yellowfin, and a wahoo.

Examination of albacore tuna gonads caught by the Charles H. Gilbert and Orsom III re-



Larvae of (top to bottom) albacore, big-eyed, Australian northern bluefin, and Pacific bluefin.

vealed that spawning had already taken place, possibly as long as two months before the expedition. This view was supported by the scarcity of larvae and the presence of young tuna.

It is known that young skipjack tuna are found regularly in the stomachs of their adults and other apex predators. In addition to the five juveniles discovered in the South Pacific, two young albacore tuna were found in the stomachs of predators caught in the North Pacific. As a result, efforts to obtain young tuna by this method will be intensified.

As more and more larvae and juvenile tuna are recorded, the spawning and nursery grounds of both North and South Pacific albacore tuna will be located. Adequate specimens obtained throughout the year will help to solve the problems of age and growth during the early stages of the albacore tuna's life history.

Dams

INTERIOR DEPARTMENT RECOMMENDS MOUNTAIN SHEEP DAMSITE ON THE SNAKE RIVER:

Federal development of the remaining section of the Middle Snake River, between Idaho and Oregon, and a specific recommendation favoring the Mountain Sheep damsite were proposed on June 28, 1962, by Secretary of the Interior Stewart L. Udall.

In a letter to the Federal Power Commission, Secretary Udall recommended that licenses be denied both public and private utility groups which have applications pending and that the Commission recommend Federal construction.

License applications now pending before the Commission are from the Pacific Northwest Power Company, a combination of private utilities operating in the area, and the Washington Public Power Supply System, a combination of public utility organizations in Washington State.

Various engineering studies for the Mountain Sheep site indicate possibility of a dam approximately 665 feet high, creating a storage reservoir up the Snake and Imnaha Rivers of about 3,600,000 acre-foot capacity and with a hydropower plant with a capacity of 1,030,000 kilowatts, approximately half that of the Grand Coulee Dam. Cost is estimated at $262,800,000.

Primary reason for recommending Federal development of this area of the river, Secretary Udall said, is because a major storage and hydro facility there would affect many fields of resource development in which the United States has vital interests.

"Its impact," he wrote the Commission, "will be so great that we recommend that the United States, and not a non-Federal entity, construct the project ultimately selected as the more desirable. Taking all resources into account, we believe that the Mountain Sheep Dam on the Snake River represents the optimum development."

Secretary Udall pointed out that a storage project on the Middle Snake River would be essentially an addition to the existing Federal Columbia River power system and that all downstream plants through which the stored water would run will be Federally owned. The 2,000,000 acre-feet of active storage at Mountain Sheep would mean 1,700 million kilowatt-hours of prime power annually at the downstream dams by stabilizing the river flow.

The proposed Mountain Sheep Dam would provide 1,550,000 acre feet of flood-control storage space. Under Federal operation, management of this storage space for power as well as flood control could be handled more effectively, thus minimizing or avoiding the possibility of conflict between the two uses. Such benefits are presently realized from Grand Coulee and Hungry Horse Dams and reservoirs, built by the Bureau of Reclamation as a part of the upstream Columbia River system. Their coordinated operation is of benefit to all downstream hydropower facilities.

Secretary Udall said an expedited Federal fishery research program is seeking a solution to fish-passage problems over large structures and through long storage reservoirs. The Nez Perce site, proposed as a substitute location for a dam, is downstream from the confluence of the Snake and Salmon Rivers and thus would block off migratory salmon heading up the Salmon River to spawn, unless the fish-passage problem is solved.

"The Mountain Sheep Project represents less hazard to the fishery resource than the Nez Perce Project," Secretary Udall wrote. "We hope the research program will develop effective means for fish passage which can be incorporated into new and existing projects, including the Mountain Sheep Project... .

"Construction and operation of the project by the United States will assure that every effort will be made promptly to preserve and improve this important fishery resource in the light of experience and changing technology."

Secretary Udall pointed out that additional costs would inevitably arise in such extensive readjustments, thus posing an acute problem in a project constructed and operated by a non-Federal entity.

For these and other reasons as stated in the letter, Secretary Udall concluded, "We believe that the varied and predominantly Federal interests involved in the development of this area of the Snake River outweigh other considerations and indicate that the Commission should recommend to the Congress that the Mountain Sheep Dam should be built by the United States."

Note: See Commercial Fisheries Review, May 1961 p. 13, January 1961 p. 20.

Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-MAY 1962:

Fresh and Frozen: For the use of the Armed Forces under the Department of Defense, more fresh and frozen fishery products were purchased in May 1962 by the Defense Subsistence Supply Centers than in the previous month. The increase was 9.9 percent in quantity and 28.4 percent in value. This shows that higher-priced fishery products were purchased in May. Compared with the same month a year earlier, purchases in May 1962 were up 14.4 percent in quantity and 34.0 percent in value.

Table 1 - Fresh and Frozen Fishery Products Purchased by Defense Subsistence Supply Centers, May 1962 with Comparisons

QUANTITY				VALUE			
May		Jan.-May		May		Jan.-May	
1962	1961	1962	1961	1962	1961	1962	1961
(1,000 Lbs.)				($1,000)			
2,528	2,210	9,616	9,279	1,439	1,074	5,434	4,609

During the first five months of 1962, purchases were up only 0.4 percent in quantity but up 17.9 percent in value as compared with the same period in 1961. Because of higher prices for and the purchase of higher-priced fishery products, the value of the purchases increased more than the quantity.

Prices paid for fresh and frozen fishery products by the Department of Defense in May 1962 averaged 56.9 cents a pound, 8.2 cents a pound more than in the previous month and 8.3 cents a pound more than in the same month of 1961.

Canned: Canned tuna and canned sardines were the principal canned fishery products purchased for use of the Armed Forces in May this year. For the first five months of this year purchases of canned fish were up

Table 2 - Canned Fishery Products Purchased by Defense Subsistence Supply Centers, May 1962 with Comparisons

Product	QUANTITY				VALUE			
	May		Jan.-May		May		Jan.-May	
	1962	1961	1962	1961	1962	1961	1962	1961
	(1,000 Lbs.)				($1,000)			
Tuna	30	-	3,706	2,662	22	-	2,062	1,175
Salmon	-	-	1,015	2	-	-	638	2
Sardine	21	8	32	89	10	4	16	43

substantially as compared with the same period of 1961 because of greater purchases of canned tuna and canned salmon.

Note: Armed Forces installations generally make some local purchases not included in the data given; actual total purchases are higher than indicated because local purchases are not obtainable.

Fish Oils

EFFECT OF DIETARY OILS ON BLOOD CHOLESTEROL:

Experiments are being conducted to determine which components of fish oils are active as cholesterol depressants. This work is being done under a U. S. Bureau of Commercial Fisheries contract awarded in 1961 to the Hormel Institute, University of Minnesota.

Results from this investigation as of March 1962 have established the following relationships between the hypercholesteremic condition: (1) whole body oils from tuna and menhaden are more effective cholesterol depressants than pure linoleate, which is one of the most active forms of essential fatty acids; (2) ester fractions from menhaden oil fatty acids have been found to be more effective cholesterol depressants than common dietary fats of either "animal" or "vegetable" origin; (3) the effects of marine oils can be duplicated by ingesting whole fish products containing these oils (i.e. menhaden, mullet, ocean perch, and silver salmon); (4) studies have shown that 8 different marine oils have a significant cholesterol depressant activity. These include the whole body oils of tuna, menhaden, herring, ocean perch, mullet, and silver salmon and the liver oils of cod and dogfish; (5) the marine oils are effective in alleviating a hyperphospholipemia condition as well as a hypercholesteremia in rats and man; these changes are accompanied by a more favorable balance between cholesterol and phospholipids in the blood and tissues of hypercholesteremic rats; (6) the changes in circulating lipids are associated with specific changes in the distribution of classes of lipids and specific fatty acid components in the cardiovascular tissues.

In many of these studies an attempt has been made to correlate the observed changes in plasma cholesterol levels with changes in the other circulating lipids and with the total and specific lipids found in the cardiovascular and associated tissues of these experimental animals. The marine oils, i.e. menhaden oil fractions, have been found to promote a reduction in liver lipid and a series of changes in the distribution of specific kinds of lipids as well as a reduction in plasma cholesterol levels of the rat. Similar changes were observed in rats fed whole fish products, but not in rats fed the more common dietary fats. Considerable effort is now being made to establish the significance of the metabolic shifts occurring in tissue lipids following supplementation with marine oil fractions.

Some of the more unique characteristics of the whole body oils from tuna, menhaden, salmon, ocean perch, herring, mullet, and cod are their relatively high contents of the "linolenic family" of acids, their high degree of total unsaturation and their contents of significant amounts of a wide range of fatty acids having 14 to 22 carbons and 0 to 6 double bonds. However, this is more of a quantitative than a qualitative distinction for the marine oils. There is a considerable gap in our knowledge as to the metabolic function of most of the lipids found in marine oils and other tissue lipids. The availability of information concerning the function of essential fatty acids is meager and speculations as to the obligatory cholesterol depressant activities of these acids and their possible role in electron transport in the cytochromes have since proven to be misconceptions. The transport of these lipids in blood and vascular tissues has received considerable attention in recent years because of the apparent importance of this phenomenon to the problem of blood-vascular diseases. However, the distribution of specific fatty acids in specific esters which varies according to the tissues examined and the distribution of lecithins, cephalins, plasmalogens in the vital organs of the body suggest that such lipids and lipid complexes must play a very important role in the vital activities of all living tissues.

Note: (1) This contract research is supervised by the Technological Laboratory, U. S. Bureau of Commercial Fisheries, Seattle, Wash. Findings are based on unpublished limited experimental data.

(2) See Commercial Fisheries Review, March 1962 p. 16.

Fish Protein Concentrate

NATIONAL ACADEMY OF SCIENCES TO STUDY FISH PROTEIN CONCENTRATE:

Secretary of the Interior Stewart L. Udall was advised by Dr. Detlev W. Bronk, President of the National Academy of Sciences, the latter part of June 1962 that the Academy will establish a committe to study fish protein concentrate (FPC). This study was requested recently by Secretary Udall.

Among other subjects, the study will be a determination of whether a wholesome, safe, and nutritious fish protein concentrate product can be made from whole fish; and whether there is a demonstrable need, either nutritionally or economically, for an inexpensive animal protein food supplement among the people comprising the lower income groups of the United States.

In requesting the National Academy of Sciences to make the study, Secretary Udall informed Dr. Bronk:

"The Department of Interior, recognizing the potential value of FPC to the domestic fishing industry and the global need for a cheap animal-protein supplement also considers the use of whole fish to be of vital importance."

The Food and Drug Administration, he pointed out, has held that the fish protein concentrate cannot be marketed in the United States inasmuch as that agency has ruled that it contains portions of the fish not normally regarded as acceptable for human food.

Processes tested and examined by U.S. Bureau of Commercial Fisheries scientists here and abroad reduce the whole fish to a "chemically-cleaned powder ideally suitable as a low-cost protein supplement so desparately needed by a majority of the world's population," Secretary Udall said.

The Fish and Wildlife Service's Bureau of Commercial Fisheries recently began a research project on fish protein concentrate. The goal is to develop new or improved methods of manufacture that would result in "a product of highest suitability in terms of keeping qualities, acceptance, cost, nutritive value, and flexibility for world-wide incorporation in diets of protein-hungry peoples of the world," Secretary Udall said.

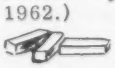
Secretary Udall added that the manufacture and utilization of fish protein concentrate covers many scientific areas such as chemistry, pediatrics, food technology, nutrition, engineering, economics, and other disciplines. Bureau of Commercial Fisheries scientists at the College Park, Md., Technological Laboratory have, by conducting a global survey, gathered and coordinated nearly all the information available on FPC studies around the world.

"Increasing concern over the world food deficit has brought into international prominence the urgent need for the technological development of cheap, stable, and nutritious fish protein concentrate suitable for world-wide dietary supplementation," Secretary Udall said. "The Department of the Interior programs now under way are designed to fulfill our Nation's responsibility in meeting this need."

Fish Sticks

NORWEGIAN SUBSIDIARY PLANT IN UNITED STATES TO DOUBLE OUTPUT:

The Norwegian firm with a plant in Mobile, Ala., plans to double the output of fish sticks. This will be accomplished by working two shifts a day, instead of one. At present, the frozen fish stick production of the Mobile plant is about 1,500 tons a year. (News of Norway, May 31, 1962.)



Great Lakes Fishery Investigations

WESTERN LAKE SUPERIOR FISHERY SURVEY FOR 1962 SEASON BEGINS:

M/V "Siscowet" Cruise 1 (May 9-29, 1962): The western Lake Superior survey for the 1962 season by the U. S. Bureau of Commercial Fisheries research Siscowet began May 9.

Studies during the cruise were devoted almost entirely to the distribution and abundance of native and hatchery-reared lake trout in the Apostle Islands region. Semi-balloon trawls were fished at depths of 15 to 44 fathoms, and a standard gang of experimental gill nets (1- to 5-inch mesh by $\frac{1}{2}$-inch intervals) was fished at 25 fathoms.

A total of 124 young lake trout were taken during the cruise (6 in gill nets and the remainder in trawls), of which 117 were fin-clipped. Of these hatchery-reared fish, 72 were from the 1961 Bayfield shore plant, 30 from the 1960 shore plant, and 6 from the 1959 boat plant. All of the young lake trout were returned alive to the water except a few which were preserved for food studies.

Most of the lake trout, and other species (small numbers of smelt, chubs, trout-perch, and sticklebacks) were taken at depths below 25 fathoms. Most of the trawl catches included yearling coregonines (a rarity in former years), but there was a complete absence of alewives, which in the fall of 1961 were taken in nearly every tow.

In conjunction with the trawling operations, a $\frac{1}{2}$-meter plankton net towed from 1 to 60 feet below the surface captured about 25 larval fish, most of which were smelt.

Surface water temperatures ranged from 34.2° F. to 43.1° F., and were within that range at all depths.

Note: See Commercial Fisheries Review, June 1962 p. 17.

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LAKE ERIE FISH POPULATION SURVEY:

The spring series of 3-day trawl operations (two 10-minute tows at each of three depths, during the morning, afternoon, and evening) were carried out in May 1962 at stations 49 (Bono) and 4 (East Harbor). Bottom topography in the medium offshore depth (15 feet) at the Bono station interfered with trawling and strong northeast winds repeatedly interrupted the schedule at East Harbor.

The catches at Bono, which were slightly greater than at East Harbor, averaged about 400 fish per tow. Yellow perch in about equal numbers from the 1959 and 1961 year-classes made up the bulk of the total catch. Sheepshead, trout-perch, spot-tail shiners, and emerald shiners were also taken in fair numbers. Alewives, gizzard shad, and white bass were conspicuously absent. At East Harbor, the principal portion of the catch of approximately 325 fish per tow was divided about equally among yellow perch, spot-tail shiners, and sheepshead. Yellow perch predominated in trawl catches earlier in May. Channel catfish and bullheads were taken consistently throughout the series. Twelve yearling yellow pike or walleyes averaging about 9.3 inches long were taken at East Harbor, and six at Bono.

Yellow perch

During one 24-hour period at each of the two index trawling stations, water samples were taken for chemical analysis, and quarter-meter plankton nets were towed at the surface, midwater, and bottom. Catches in the plankton nets ranged from a few to upward of 1,000 fry per 10-minute tow. The midwater hauls yielded the most fry, and slightly larger numbers were taken at night than during the day.

Surface water temperature increased steadily from about 58° F. at the beginning of the month to about 70° F. at the end.

Sampling of the commercial catch, which began in April, was completed in early May. Approximately 2,300 scale samples were collected. Many commercial fishermen curtailed operations because of the low market price of yellow perch, excessive numbers of undersize fish, and a scarcity of the more desirable fish species.

Emphasis in June 1962 was on the evaluation of spawning success and the subsequent survival of newly hatched fish in Lake Erie. Tows with half-meter and meter plankton nets yielded from several hundred to as many as 5,000 larval fish per 10-minute haul. By late June most fish of the 1962 year-class were large enough to be caught in regular bottom trawls equipped with $\frac{1}{4}$-inch-mesh cod ends. As expected, young-of-the-year yellow perch predominated; varying numbers of white bass, gizzard shad, spot-tail shiners, smelt, and yellow pike (walleyes) also were caught.

The early indications of successful reproduction of yellow pike in 1962 were especially encouraging. More than 200 fingerlings were captured in trawl tows, a much higher number than taken in the corresponding period of 1959 (the year of the last successful hatch). The young yellow pike were widely distributed. Some were caught at each station visited.

Trawl catches of the larger fish consisted mainly of yellow perch, sheepshead, channel catfish, and spot-tail shiners. Yellow perch of all age classes were increasing in weight and appeared to be in a healthy condition. Yearling perch continued to feed on plankton, whereas older perch had changed over to a diet of small fish.

The bottom sediments of the central basin were investigated for two weeks in mid-June to determine the oxygen demand of the sediments and its effects on the water in contact with the bottom materials. Samples were taken by the Musky II at 53 stations between the Bass Islands and Lorain, Ohio (most were south of the international boundary). Data were obtained on the dissolved oxygen, pH, alkalinity, and turbidity of the lake water at various depths at each station, in addition to uptake of dissolved oxygen by mud samples in continual suspension as well as over packed mud cores. Dry and ash weights of the sediment were obtained for each station.

Water analyses and tows with bottom trawls were carried out at two former stations established by the Cisco in the central basin. These locations were selected because of the dissolved oxygen deficiency observed in previous years. The stations were to be checked periodically throughout the summer to determine the relationship, if any, between the low dissolved oxygen in deep water and the identity and number of fish and other forms of aquatic life. The use of a midwater trawl also was to be explored.

Surface water temperatures in the western end of Lake Erie averaged 70° F. at the beginning of the month and increased to about 75° F. by late June. Water temperatures in Sandusky Bay usually ranged several degrees warmer than in the main lake. In general, water temperatures were considerably warmer than for the same period in 1960 and

1961, but compared favorably with temperatures in 1959.

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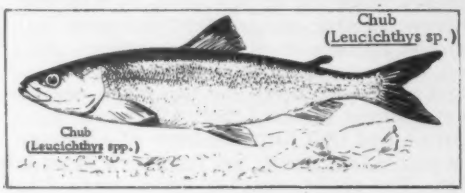
DEPTH DISTRIBUTION OF CHUBS AND ASSOCIATED SPECIES IN LAKE MICHIGAN STUDIED:

M/V "Cisco" Cruise 2 (May 15-19, 1962): One of the primary objectives of cruise 2 in Lake Michigan, off Saugatuck, Mich., was to determine the bathymetric or depth distribution of chubs (Coregonus or Leucichthys spp.) and associated fish species before thermal stratification developed. The cruise was made by the U. S. Bureau of Commercial Fisheries research vessel Cisco. Surface water had warmed somewhat near shore, but not enough to establish a definite discontinuity layer. The water was homothermous at about 37.4° F. in all areas 8 miles offshore, at depths of 35 fathoms or more. Bottom trawl hauls were made at 7, 10, 12, 15, 20, 25, 30, 35, 40, and 50 fathoms. Chubs (practically all C. hoyi were taken at all depths except 7 and 10 fathoms, but catches were small. Alewives, the most common species taken, were caught at all depths, but were most abundant inside of 20 fathoms. Yellow perch were common out to 15 fathoms. Smelt were rather abundant at 12 and 15 fathoms; only a few were taken at other depths. Slimy sculpins were found at all depths, but were taken in greatest numbers in the 25- to 40-fathom range; deep-water sculpins were caught in only the three deepest tows, and were abundant only at 50 fathoms. Spot-tail shiners were taken as deep as 15 fathoms, trout-perch as deep as 20 fathoms, and logperch as deep as 12 fathoms.

Gill nets which were set at 84 fathoms in an area where the Cisco took large numbers of C. kiyi in 1954 yielded only a few fish of that species. Surprisingly, about 25 percent of the C. hoyi at this depth appeared to be in spawning condition, at least 2 months after their regular spawning time. The C. hoyi caught in shallower water (50 fathoms and less) seemed to have spawned sometime ago.

Vertical distribution at midwater levels was investigated by the use of trawls, gill nets set obliquely from top to bottom, small-mesh gill nets suspended beneath the surface, and ½-meter large-mesh plankton nets. Alewives appeared to be rather abundant in midlevels out to a depth of 35 fathoms. A few smelt were caught in the midwater trawls, and several yellow perch were taken near the surface in an oblique gill net set in 13 fathoms. Only 4 C. hoyi were taken midwater in the trawls, but 94 were caught off the bottom in an oblique 1¼-inch-mesh gillnet set in 25 fathoms. Some of the C. hoyi (which were mostly about 7.5 inches long) were caught within 20 feet of the surface. Several coregonine fry were caught in midwater over 40-, 50-, and 84-fathom bottoms; they did not seem to be concentrated at any midlevel, but were scattered from near-surface to near-bottom in the homothermous water in which they were found. Tows in water from 7 to 35 fathoms deep failed to produce fry.



A graduate student from the University of Michigan was aboard the vessel for 3 days to collect blood samples from chubs (taken alive from gill nets and trawls) for electrophoresis and seroligical studies. These studies are designed to develop methods to aid in the identification of the various chub species.

M/V "Cisco" Cruise 1 (April 24-May 8): During cruise 1 the Cisco was under contract to the U. S. Public Health Service. The Bureau furnished the Cisco's regular vessel crew and two biologists from the Ann Arbor Laboratory, and the Public Health Service supplied a scientific staff of three. Hydrographic and bacteriological information was collected at 36 widely-scattered locations in southern and central Lake Michigan.

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LAKE MICHIGAN FISHERY SURVEY CONTINUED:

M/V "Cisco" Cruise 4 (June 26-July 9, 1962): Rather pronounced thermal stratification was observed in all areas visited in Lake Michigan, off Saugatuck and Grand Haven, Mich., as far out as midlake during this cruise. Surface water temperatures were approximately 61° to 64° F. Early in the cruise, the temperature gradient or thermocline touched bottom at about 6 fathoms. Drags with a bottom trawl equipped with a small-mesh cod end showed a rapid change in depth distribution of bottom fish near this depth. A 10-minute tow

at 5 fathoms took no chubs (Coregonus hoyi) or smelt, 586 alewives, 144 yellow perch, and 2 trout-perch; a similar tow at 7 fathoms, where the bottom water temperature was colder, caught 187 chubs, 198 smelt, 2 alewives, 201 perch, and 196 trout-perch. At 10 fathoms the catch was 395 chubs, 23 smelt, no alewives, 223 perch, and 2 slimy sculpins. A few perch and smelt were caught at 12 fathoms, but in tows at 15, 20, 25, 30, 35, and 40 fathoms the catches were almost entirely chubs except for moderate numbers of slimy sculpins.

Catches from a small-mesh gill net set obliquely from top to bottom in 26 fathoms, and from another suspended 7 fathoms beneath the surface at the same station, indicated that considerable numbers of chubs occupied midlevels up to the top of the temperature gradient (about 5 fathoms below the surface), and that fair numbers of alewives were above that point, but few were in or below it. The chubs, most of which were 7 to 8 inches long, were most abundant at the 5- to 10-fathom level and near the bottom. Small trawls towed midwater at night off Grand Haven took only a few alewives and chubs. Some of the alewives were apparently yearlings, but no yearling chubs were caught.

Half-meter plankton nets of rather large mesh (No. 32 grit cloth) were towed at various levels from the surface to near the bottom at 5-fathom depth intervals, over bottoms from 5 to 45 fathoms deep off Saugatuck, and at 5 to 30 fathoms off Grand Haven. Fish fry, believed to be alewives and smelt, were fairly numerous a few meters below the surface over all bottoms out to 20 fathoms, but not beyond. Coregonine fry were caught in small numbers in the temperature gradient and slightly below it, over bottom depths ranging from 25 to 40 fathoms.

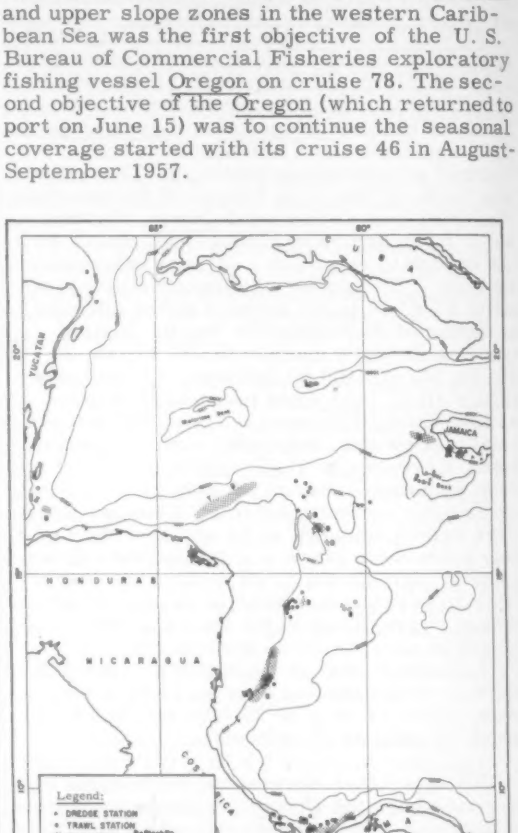
Of 175 chubs caught in a gill net set on the bottom at 84 fathoms, 11 females were ripe and 13 gravid, although the usual spawning season for that species, at least in shallower water, is January to March.

The collection of blood from live chubs for an electrophoresis study was carried out by a University of Michigan graduate student. This study was started on cruise 2.

Gulf Exploratory Fishery Program

WESTERN CARIBBEAN SEA POTENTIALLY-VALUABLE SPECIES ASSESSED:

M/V "Oregon" Cruise 78: To assess the sea bottom for potentially-valuable species of fish and shellfish in the outer Continental Shelf and upper slope zones in the western Caribbean Sea was the first objective of the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Oregon on cruise 78. The second objective of the Oregon (which returned to port on June 15) was to continue the seasonal coverage started with its cruise 46 in August-September 1957.



Shows the station pattern for cruise 78 of the M/V Oregon (May 8-June 15, 1962).

Basic exploratory gear was a 40-foot shrimp trawl. Length of tows varied with bottom conditions. In areas where bottom conditions were too rough for shrimp trawl sampling, a 5-foot tumbler dredge was used. A total of 60 trawling and 13 dredging stations were completed in the survey depths of 50 to 500 fathoms. In addition, 6 trawling stations and 8 dredging stations were completed at lesser depths. Specific areas of

deep-water trawling coverage were off Panama, Nicaragua, Honduras, British Honduras, and to the north and west of Pedro Bank.

Royal-red shrimp (Hymenopenaeus robustus) were present in the majority of drags in depths of 200 to 400 fathoms. Only small concentrations were found, chiefly in 250-275 fathoms off Nicaragua, which yielded catches of approximately 20 pounds (heads on) per 1- to 2-hour tow. Peneopsis megalops had a similar distribution and were taken at rates of up to 35 pounds per tow. Large scarlet prawns (Plesiopenaeus edwardsianus) were found throughout the 250- to 500-fathom depths but catches were small (1 to 15 pounds). Deep-water lobster (Nephrops binghami) were present in the 125- to 300-fathom range, which ranged from 4 to 40 count (heads on) per pound. Attempts to simulate commercial-scale trawling with larger trawls were not feasible because of heavy sea conditions. Several catches of 10 to 30 pounds were made with the exploratory gear, chiefly in depths of about 200 fathoms off Nicaragua and British Honduras.

Indications of good trawling grounds for yellow-eye snapper (Lutjanus vivanus) were located over an extensive area along Nicaragua in depths of 70 to 110 fathoms. Catches with exploratory gear produced from 45 to 120 pounds of 13-inch to 26-inch snapper, with the best catches from 80-85 fathoms. Depth-recorder tracings from off Little Corn Island to off Cape Gracias a Dios indicated several hundreds of square miles of smooth bottom in these ranges.

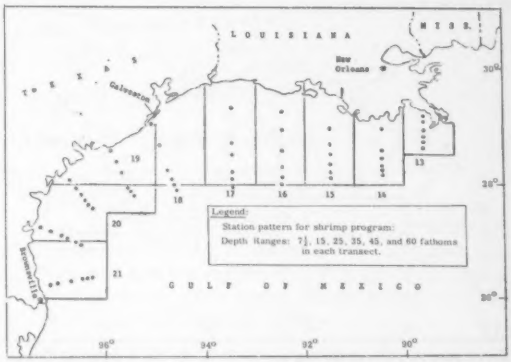
Numerous small schools of blackfin tuna were observed throughout the survey area, and 24 trolling captures yielded blackfin ranging from $1\frac{1}{2}$ to 14 pounds. Schools were greatly concentrated at the edges of the shelf, particularly off Nicaragua. Two large schools of yellowfin were observed off Punta Patuca, Honduras. Three trolling captures from these schools yielded yellowfin ranging from 9 to 25 pounds.

A two-day program of ichthyological collecting was conducted on the south coast of Jamaica in cooperation with the Los Angeles County Museum and the Institute of Jamaica. Eleven trawling and dredging stations and one hand-line station were occupied on the Continental Shelf between 8 and 23 fathoms. Of commercial interest was the capture of Caribbean brown shrimp (Penaeus braziliensis) at rates of up to 104 individuals per 15 minute drag. P. braziliensis were present in 5 drags in 14 to 22 fathoms between Minho and Black Rivers. Judicious selection of trawling bottom was necessary because of the broken topography.

Gulf Fishery Investigations

SHRIMP DISTRIBUTION STUDIES:

M/V "Belle of Texas" Cruise BT-20 and "Miss Angela" Cruise MA-14: Only light catches of shrimp were made by the research vessels Belle of Texas and the Miss Angela in May 1962. Both of the vessels are operated by the Galveston Biological Laboratory of the U. S. Bureau of Commercial Fisheries in studying the distribution of shrimp in the Gulf of Mexico.



Shows the station pattern for cruise BT-20 of the M/V Belle of Texas and cruise MA-14 of the M/V Miss Angela in May 1962.

A total of 8 statistical areas were covered. Coverage of two statistical areas was not completed because of a breakdown of the M/V Miss Angela. One 3-hour tow was made in each of 3 depth ranges in each area. A 45-foot shrimp trawl was used. Most of the catches consisted of brown shrimp with traces of white and pink shrimp. The largest single catch was 18 pounds of heads-on shrimp (all brown) of 20-40 count (heads-off) size in 20-40 fathoms in area 19. This same area yielded only 13 pounds (heads-on) brown, white, and pink shrimp in 0-20 fathoms, and only 1 pound (heads-on) of brown shrimp in 40-60 fathoms.

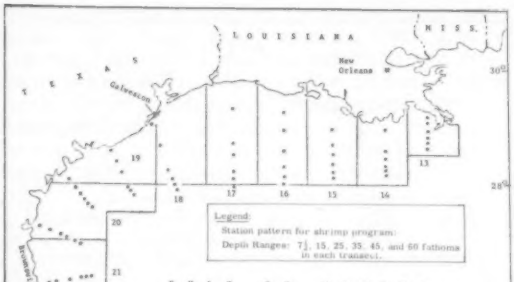
* * * * *

M/V "Belle of Texas" Cruise BT-21 (June 18-23, 1962): Small catches of mostly brown

shrimp were made by the M/V Belle of Texas.

Four statistical areas were covered and a 45-foot shrimp trawl was used. One 3-hour tow was made in each of the 3 depth ranges in each area. The largest single catch was 15 pounds (heads-on) of 26-30 count heads-off brown shrimp made in the depth range up to 20 fathoms in area 18. The same area yielded 3 pounds (heads-on) of 12-15 count (heads-off) shrimp in the 20-40 fathom range, and 1 pound (heads-on) of the same size in the 40-60 fathom depth.

Each tow in area 19 yielded 12-15 count (heads-off) brown shrimp; 3 pounds (heads-on) in the depth range up to 20 fathoms, 4 pounds (heads-on) in the 20-40 fathom range, and 6 pounds (heads-on) in 40-60 fathom depths.



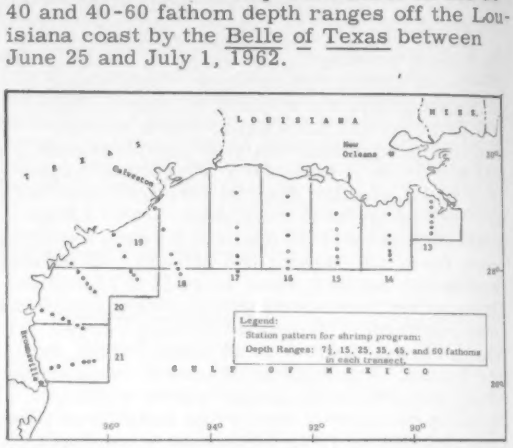
Shows station pattern for cruise BT-21 of the M/V Belle of Texas, June 18-23, 1962.

Concentrations of small brown shrimp counting less than 68 heads-off to the pound were found at 7½ fathoms in areas 20 (10 pounds, heads-on) and 21 (7 pounds, heads-on). Some 15-20 count (heads-off) white shrimp and 31-40 count (heads-off) pink also were caught in the 0-20 fathom depth range in area 20. Large brown shrimp of 12-15 count (heads-off) were taken in area 20--5 pounds (heads-on) in the 20-40 fathom range, and 12 pounds (heads-on) in the 40-60 fathom range.

Area 21 also yielded large 12-15 count (heads-off) brown shrimp; 10 (heads-on) pounds in the 20-40 fathom range and 1 pound (heads-on) in the 40-60 fathom range.

* * * * *

M/V "Belle of Texas" Cruise BT-22 (June 25-July 1, 1962): Good catches of 12-15 count heads-off brown shrimp were made in the 20-40 and 40-60 fathom depth ranges off the Louisiana coast by the Belle of Texas between June 25 and July 1, 1962.



Shows the station pattern for cruise BT-22 of the M/V Belle of Texas, June 25-July 1, 1962.

A total of 5 statistical areas were covered. One 3-hour tow was made in each of 3 depth ranges in each area. A 45-foot shrimp trawl was used. All of the catches consisted of brown shrimp except in area 13 where one tow in the up to 20-fathom range yielded 2 pounds (heads-on) of 12-15 count (heads-off) white shrimp, and only 4 pounds (heads-on) of brown shrimp of the same size. The 20-40 fathom range in this area produced 9 pounds (heads-on) of 15-20 count (heads-off) brown shrimp.

The largest catch was in area 15 which yielded 25 pounds (heads-on) of 12-15 count brown shrimp in the 40-60 fathom depth range, 13 pounds (heads-on) of the same size in the 20-40 fathom range, and 24 pounds (heads-on) of 41-50 count (heads-off) in the 0-20 fathom range. The next largest catch of 12-15 count shrimp was in area 14 which yielded 26 pounds (heads-on) in the 20-40 fathom depth range, and 4 pounds (heads-on) in the 40-60 fathom range. The up to 20-fathom range accounted for 2 pounds of 41-50 count shrimp.

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SHRIMP MARKING STUDY IN GULF OF MEXICO:

Small brown shrimp were stained during a cruise off the Louisiana and Texas coasts by the research vessel M/V George M. Bowers operated by the Galveston Biological

Laboratory of the U. S. Bureau of Commercial Fisheries. The vessel returned to Galveston on July 19, 1962. The purpose of the marking study is to determine the movement, growth, and mortality of shrimp stocks in those areas.

Shrimp caught and released off the Louisiana coast were marked with green stain; those off the Texas coast were marked with a blue stain.

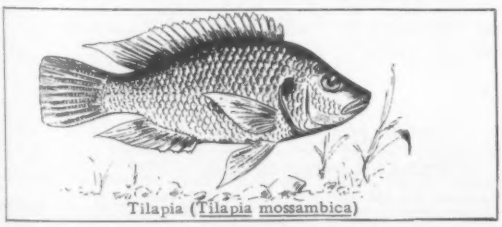
The assistance and cooperation of fishermen and packing house personnel in detecting and returning marked shrimp is needed if the study is to be successful. A $2.00 reward will be paid by Bureau of Commercial Fisheries port agents or samplers for each marked shrimp returned, together with information on the area and depth of recapture.

A similar mark-recapture study with white shrimp off the Louisiana coast was planned for August 1962. (Cruise 40, July 6-19, 1962.)

Hawaii

GOOD RESULTS WITH TILAPIA AS LIVE BAIT FOR SKIPJACK TUNA:

Tilapia from the State of Hawaii's baitfish hatchery in Honolulu have proven very successful as live bait for skipjack tuna (aku), according to the Hawaii Area Director of the U. S. Bureau of Commercial Fisheries. The venture was described as the first full-scale use of tilapia for that purpose. Early this summer, the sampan Broadbill, chartered by the Bureau's Biological Laboratory in Honolulu, using $35 worth of tilapia from the State's hatchery, caught tuna worth about $450.



Tilapia (Tilapia mossambica)

The fishery research biologist in charge of a cooperative Federal-State program of tuna gill-net fishing experiments aboard the Broadbill, reported that, in his opinion, the hatchery-reared tilapia show definite promise as skipjack tuna bait. He found in recent fishing around the island of Kauai that schools of both large (25-30 pound) and small (2-4 pound) skipjack tuna responded well to chumming with tilapia averaging 1-2 inches long. The biologist expects that as more experience with the new bait is gained, fishermen will find that using a different vessel speed while fishing and making other modifications of techniques now used with natural bait will further improve the efficiency of tilapia as bait for skipjack.

According to the Director of the State Division of Fish and Game, the tilapia hatchery and rearing setup was getting into quantity production early this summer. It was believed that moderate quantities of bait fish could be supplied intermittently during the rest of the 1962 summer skipjack fishing season. By next year's fishing season, the State of Hawaii's baitfish hatchery is expected to be in a position to contribute importantly to the solution of the Oahu skipjack fleet's chronic bait shortage.

Industrial Fishery Products

U. S. PRODUCTION, JUNE 1962:

Preliminary data on U. S. production of fish meal, oil, and solubles for June 1962 as collected by the U. S. Bureau of Commercial Fisheries and submitted to the International Association of Fish Meal Manufacturers are shown in the following table.

U. S. Production 1/ of Fish Meal, Oil, and Solubles, June 1962 (Preliminary) with Comparisons

Region	Meal	Oil	Solubles	Homogenized
	Short Tons	1,000 Gallons	....(Short Tons)....	
June 1962:				
East & Gulf Coasts	54,040	6,258	20,521	3/ 1,675
West Coast 2/	2,431	62	1,734	-
Total	56,471	6,320	22,255	1,675
Jan.-June 1962 Tot.	112,449	11,311	43,487	5,370
Jan.-June 1961 Tot.	102,502	11,866	36,552	3,648

1/Does not include crab meal, shrimp meal, and liver oils.
2/Includes Hawaii, American Samoa, and Puerto Rico.
3/Includes condensed fish.

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MAJOR INDICATORS FOR U. S. SUPPLY, MAY 1962:

For the first five months of 1962, fish meal, solubles, and fish oil production was down as compared with the same period of 1961.

Major Indicators for U. S. Supply of Fish Meal, Solubles, and Oil, May 1962

Item and Period	1962	1961	1960	1959	1958
	(Short Tons)				
Fish Meal:					
Production 1/:					
July	-	62,586	55,696	52,132	43,467
June	-	53,162	44,293	52,006	30,949
May	32,500	32,922	17,194	25,312	17,433
Jan.-Apr.	13,604	13,735	12,222	14,155	11,661
Jan.-Dec. prelim. total 2/	-	289,039	257,969	275,396	216,510
Jan.-Dec. final tot.	-	311,265	290,137	306,551	248,140
Imports:					
July	-	18,710	13,131	4,303	13,546
June	-	19,317	11,178	10,836	9,091
May	-	24,753	9,496	16,329	8,949
April	26,390	19,060	10,396	17,654	11,758
Jan.-Mar.	62,774	44,333	35,304	55,882	26,148
Jan.-Dec. totals	-	217,845	131,561	132,955	100,352
	(Short Tons)				
Fish Solubles:					
Production 3/:					
July	-	22,589	18,876	30,163	21,892
June	-	17,772	20,735	26,756	16,561
May	13,100	13,629	7,370	18,639	9,351
Jan.-Apr.	8,875	8,799	8,841	13,493	7,518
Jan.-Dec. totals	-	112,241	98,929	165,359	130,177
Imports:					
July	-	708	96	4,938	607
June	-	207	149	202	137
May	-	283	59	4,874	1,405
April	323	220	134	1,622	45
Jan.-Mar.	2,830	509	2,176	1,767	706
Jan.-Dec. totals	-	6,739	3,174	26,630	14,567
	(1,000 Gallons)				
Fish Body Oils:					
Production:					
July	-	7,553	5,337	4,143	3,792
June	-	6,296	4,672	4,826	3,267
May	3,600	4,367	1,768	2,604	2,166
Jan.-Apr. 4/	838	602	416	580	379
Jan.-Dec. prelim. total	-	33,471	26,690	24,418	21,625
Jan.-Dec. final tot.	-	34,409	27,826	24,945	21,977
Exports:					
July	-	589	5,414	3,770	791
June	-	280	208	1,514	242
May	-	426	324	1,455	293
April	1,369	980	761	1,116	254
Jan.-Mar.	5,510	4,874	3,874	2,497	3,527
Jan.-Dec. totals	-	16,331	19,155	19,264	12,539

1/Does not include crab meat, shrimp, and misc. meals.
2/Preliminary data computed from monthly data. Fish meal production currently comprised 86 percent of the annual total for 1958, 90 percent for 1959, 89 percent for 1960, and 92 percent for 1961.
3/Includes homogenized fish.
4/Preliminary data computed from monthly data. Represents over 95 percent of the total production.
Note: Data for 1962 and 1961 are preliminary.

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U. S. PRODUCTION, APRIL 1962:

During April 1962, United States fish meal and scrap production was up 200 tons or 3 percent and marine-animal oil yield was up 206,300 gallons or 46 percent as compared with the same month in 1961.

Menhaden accounted for 54 percent of the April 1962 meal total. Oil from menhaden comprised 81 percent of that month's oil production.

Mending a menhaden purse-seine net requires highly specialized skill.

There were 89 tons more fish solubles produced in April 1962 than in the same month of 1961. The production of homogenized condensed fish was up 700 tons.

U.S. Production of Fish Meal, Oil, and Solubles, April 1962 with Comparisons

Product	April		Jan.-Apr.		Total
	1/1962	1961	1/1962	1961	1961
	(Short Tons)				
Fish Meal and Scrap:					
Herring, Alaska	-	-	-	-	3,819
Menhaden 2/	3,402	3,612	3,609	4,143	247,551
Sardine, Pacific	-	-	639	-	2,516
Tuna and mackerel	1,771	1,638	6,295	6,490	21,243
Unclassified	1,138	862	3,011	3,024	16,215
Total fish meal and scrap	6,311	6,112	13,604	13,657	291,337
Shellfish and marine animal meal and scrap	3/	3/	3/	3/	19,928
Grand total meal and scrap	3/	3/	3/	3/	311,265
Fish solubles	2,716	2,627	7,595	8,183	100,551
Homogenized condensed fish	1,050	338	1,280	616	11,690
	(Gallons)				
Oil, body:					
Herring, Alaska	-	-	-	-	727,517
Menhaden 2/	530,658	360,630	555,626	370,680	31,355,570
Sardine, Pacific	-	-	19,111	-	86,167
Tuna and mackerel	55,820	43,533	159,514	144,281	762,509
Other (including whale)	65,700	41,686	103,676	105,185	1,477,042
Total oil	652,178	445,849	837,927	620,146	34,408,805

1/Preliminary data.
2/Includes a small quantity produced from thread herring.
3/Not available on a monthly basis.

During the first four months of 1962, meal and scrap production was slightly below that for the same period of 1961; the marine-animal oil yield was up 217,800 gallons.

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U. S. FISH MEAL AND SOLUBLES:

Production and Imports, April 1962: Based on domestic production and imports, the United States available supply of fish meal for the first 4 months of 1962 was 25,700 tons or 33 percent greater than during the same period of 1961. Domestic production was slightly less, but imports were 25,800 tons greater than in the 4-months period of 1961. Peru continued to lead other countries with shipments of 67,700 tons during the first 4 months of 1962--22,400 tons above the imports in the same period of 1961.

The total United States supply of fish meal in calendar year 1961 of 529,100 tons exceeded the peak year 1959 when the quantity amounted to almost 440,000 tons.

The United States supply of fish solubles (including homogenized fish) during January-April 1962 was 2,500 tons more than during the same period in 1961. Solubles and homogenized fish of 8,900 tons manufactured from domestically-caught fish made up 74 percent of the 4 months supply in 1962.

U. S. Supply of Fish Meal and Solubles, January-April 1961-62 and Total for 1961

Item	January-April		Total
	1/1962	1961	1961
	(Short Tons)		
Fish Meal and Scrap:			
Domestic production:			
Menhaden	3,609	4,143	247,551
Tuna and mackerel	6,295	6,490	21,243
Herring, Alaska	-	-	3,810
Other	3,700	3,024	38,661
Total production	13,604	13,657	311,265
Imports:			
Canada	14,748	9,879	38,218
Peru	67,725	45,324	151,439
Chile	2,039	3,582	12,074
Angola	-	1,433	1,543
So. Africa Republic	4,501	3,036	13,026
Other Countries	151	139	1,545
Total imports	89,164	63,393	217,845
Available fish meal supply	102,768	77,050	529,110
Fish Solubles:			
Domestic production 2/	8,875	8,799	112,241
Imports:			
Canada	600	465	1,001
So. Africa Republic	101	180	1,351
Other Countries	2,452	84	4,387
Total imports	3,153	729	6,739
Available fish solubles supply	12,028	9,528	118,980

1/ Preliminary.
2/ 50-percent solids. Includes production of homogenized condensed fish.

Maine Sardines

CANNED STOCKS, JUNE 1, 1962:

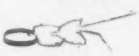
Distributors' stocks of Maine sardines totaled only 99,000 actual cases on June 1, 1962--116,000 cases or 54 percent less than the 215,000 cases on hand at the same time in 1961, according to estimates made by the U. S. Bureau of the Census.

Canners' stocks on June 1, 1962, totaled only 50,000 standard cases (100 3¾-oz. cans), a decline of 244,000 cases (83.0 percent) as compared with June 1, 1961. This reflected one of the shortest packs in recent years for 1961.

The Maine Legislature authorized a 1962 season of 13 months--December 2, 1961-January 1, 1963. The 1961 season was from April 15 to December 1, the usual legal packing season for canned sardines in Maine. The pack December 2-June 1 totaled 45,000 cases, and by June 9 the pack reached 163,976 cases. Through June 30, 1962, this season's pack totaled 452,519 standard cases. During April 15-June 30, 1961, a total of 53,844 cases were packed. During April 15-June 30, 1960, a total of 337,000 cases were packed.

As is evident, the bulk of the 1962 season pack to date was canned in June. Most of the fish were caught in the Boothbay-Portland (western) area. The catch was very disappointing in the middle and eastern areas of Maine.

On April 15, 1962, the date on which the packing season started in former years, carryover stocks totaled about 33,000 cases. One year earlier, on April 15, 1961, carryover stocks totaled 457,000 cases.



Massachusetts

FISHERY LANDINGS BY GEAR AND AREA, 1961:

Landings by fishing craft of all sizes at Boston, Gloucester, New Bedford, and other Massachusetts ports during 1961 totaled nearly 432 million pounds--a 3-percent decrease compared with the amount landed the previous year. Haddock was the leading species with 114.4 million pounds, followed by whiting (71.6 million pounds), and flounders (59 million pounds).

Canned Maine Sardines--Wholesale Distributors' and Canners' Stocks, June 1, 1962, with Comparisons 1/

Type	Unit	1961/62 Season				1960/61 Season					1959/60 Season	
		6/1/62	4/1/62	1/1/62	11/1/61	7/1/61	6/1/61	4/1/61	1/1/61	11/1/60	7/1/60	6/1/60
Distributors	1,000 actual cases	99	148	193	202	208	215	267	233	277	172	197
Canners	1,000 std. cases 2/	50	45	144	221	201	294	506	1,029	1,258	359	235

1/ Table represents marketing season from November 1-October 31.
2/ 100 3¾-oz. cans equal one standard case.

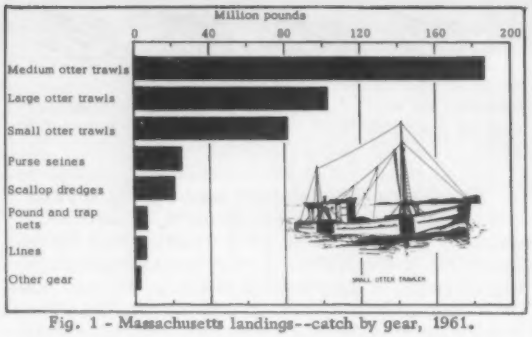


Fig. 1 - Massachusetts landings--catch by gear, 1961.

Fishing grounds off the New England coast yielded 359 million pounds or 83 percent of the entire landings. About 16 percent was taken on grounds off Nova Scotia, while the remaining 1 percent came from the Gulf of St. Lawrence, the Grand Banks, and from areas off the Middle Atlantic States.

Fig. 2 - Unloading a small dragger at Gloucester, Mass.

A total of 712 fishing craft was required to capture the 432 million pounds of fish and shellfish taken in 1961. Of that number, 434 craft using otter trawls caught 86 percent of the total landings. Purse seines accounted for 6 percent, scallop dredges took 5 percent, and the remainder was taken on lines, in pound and trap nets, by harpoons, or with gill nets.

Mississippi

FISHERY LANDINGS, 1961:

Landings of fish and shellfish at Mississippi ports during 1961 totaled 391.9 million pounds valued at $7.6 million ex-vessel--a gain of 25 percent in volume and less than 1 percent in value. Fish for industrial use (378.1 million pounds) comprised 96 percent of the year's total catch.

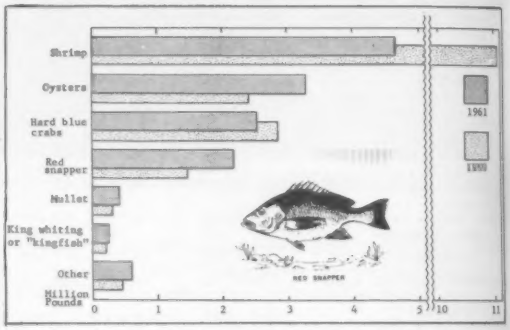


Fig. 1 - Landings of certain edible fish and shellfish, 1961-1960.

Total food finfish landings (3.4 million pounds valued at $660,000) were 33 percent above the previous year primarily because of greater landings of red snapper. An increase in the catch of spotted sea trout taken by trammel nets also contributed to the year's increased production.

The 1961 record catch of menhaden (301.3 million pounds valued at $3.4 million) was up 38 percent in quantity and 55 percent in value as compared with 1960. The increased value was the result of an improved market for fish meal. The menhaden oil market remained at the previous year's low level.

Fig. 2 - Crab processing plant in Mississippi on the Biloxi Back Bay.

Total landings of shellfish amounted to 10.4 million pounds valued at $2.3 million--down 36 percent in volume and 37 percent in value as compared with 1960.

The worst shrimp year since the early 1900's was principally responsible for the sharp decreases in shellfish landings. Compared with 1960, the catch (4.6 million pounds heads-on, valued at $1.4 million) was down 58 percent in quantity and 53 percent in value. As the shrimp fishery uses the largest number of people in the fishing industry, the drop in landings affected most of the industry in the State.

A 36-percent increase in oyster landings in 1961 was the only bright spot in the State's 1961 shellfish fisheries. The market was good due to strong demand.

Fig. 3 - Picking blue crabs in a crab plant in Mississippi.

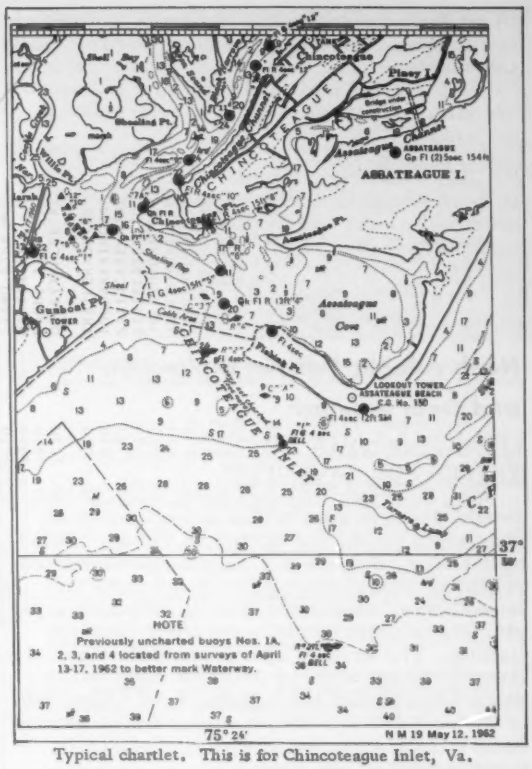
Hard blue crab landings of 2.5 million pounds with a value of $143,000 were down 11 percent in quantity and 15 percent in value from 1960.

Navigation

MARCH STORMS ROUGHED-UP OCEAN BOTTOM AND ALTERED NAVIGATION CHANNELS ALONG ATLANTIC SEABOARD:

The March 1962 storms along the Atlantic seaboard roughed-up the ocean bottom as much, if not more than it altered the beaches, according to a June 1962 report by the Coast and Geodetic Survey, U. S. Department of Commerce.

Working from Survey launches and ships, the hydro-parties have come up with a number of surprising discoveries. Major changes, for example, were noted around Cape Henlopen, Del., where 40-foot depths were found to have shoaled to less than 3 feet. Cape Henlopen, itself, has built out several hundred feet to the northwest, partially blocking



Typical chartlet. This is for Chincoteague Inlet, Va.

the old channel. Another survey party, working Sinepuxent Channel, between Assateague Island and the mainland near Ocean City, Md., reportedly found a depth of 19 feet where less than 6 feet of water had been recorded prior to the storm.

New soundings and hydrography reflecting the widespread displacement of channels, the appearance of new shoals and the reduction of others, are shown on five emergency chartlets. These are Ocean City, Md.; Ocracoke Inlet, N. C.; Indian River Inlet, Del.; Chincoteague Inlet, Va.; and Cape Henlopen, Del. Cape Lookout, N. C., and Moriches Inlet, L. I., N. Y., chartlets were ready for issue about June 30, and others will be prepared as field data becomes available.

Commercial and pleasure boatmen are warned of the dangerous shoaling and are urged to supplement their standard nautical charts with these free emergency chartlets.

The Director of the Survey stated that "Some of the changes noted in the configuration of the sea bottom constitute a real and

immediate danger to the hundreds of pleasure boatmen who have already begun the 1962 boating season." The U. S. Coast Guard reports that losses of nearly $570,000 are sustained annually in damage due to vessels running aground.

Chartlets are available to the public from authorized nautical chart agents, or from the Director, Coast and Geodetic Survey, Washington 25, D. C.

North Atlantic Fisheries Exploration and Gear Research

LONG-LINE GEAR TESTED FOR SWORDFISH:

M/V "Rorqual" Cruise 62-2 (June 18-28, 1962): Pelagic gear trials using long-line gear were conducted during an 11-day cruise by the U. S. Bureau of Commercial Fisheries research vessel Rorqual to determine the feasibility of this method as an effective supplement to commercial swordfish harpoon fishing. The area of operations extended from 20 miles SSW. to 35 miles SSE. of No Mans Land Island (50 miles SW. of Cape Cod) in 27 to 31 fathoms depth. Commercial swordfish vessels were working successfully in those waters at the time.

Long-line gear units consisted of 72-fathom baskets, each with 3 hooks spaced at 24 fathoms. Each set was baited, half with frozen squid and half with frozen blueback herring. The fishing depth of 5 out of the 6 sets made was estimated to be 0 to 10 fathoms from the bottom. Depth of the final set was estimated to be 9 to 20 fathoms from the bottom. Setting times were arranged to fish the gear according to tidal current in relation to bottom contours and to determine possible differences in swordfish feeding habits. A hydraulic crab and long-line block was successfully used to retrieve all sets, although a need for modifying its installation on the vessel was indicated. The six sets made, comprising 270 hooks, demonstrated that use of the gear for swordfish in the area fished would be impractical because of shark infestation at that time of year. From a total of 93 fish caught, 89 were sharks.

In addition to long-line fishing, night-lighting collections were preserved, depth

Hydraulic crab and long-line block used to retrieve fishing gear.

casts taken, and biological examination made on the catch. Six swordfish were examined aboard a commercial fishing vessel. Sexual glands and eyesockets of all swordfish were preserved for future detailed analysis to determine sex and age. Swordfish stomach contents consisted of hake (Urophycis spp.), squid (Loligo pealli), blueback herring (Alosa aestivalis), and butterfish (Poronotus triacanthus). Partial identification of dip-net catches included the Atlantic saury (Scomberesox saurus), blueback herring (Alosa aestivalis), squid (Loligo pealli), and the pelagic stage of the American lobster (Homarus americanus).

North Atlantic Fisheries Investigations

LIVE MARINE SPECIMENS AND BIOLOGICAL DATA ON HAKE COLLECTED:

M/V "Delaware" Cruise 62-8 (June 25-28, 1962): To collect live specimens of the common offshore marine species off the New England coast was the purpose of this cruise of

the research vessel Delaware of the U. S. Bureau of Commercial Fisheries.

Three bottom tows were made in the South Channel area and ten tows south of Marthas Vineyard. Seven of the ten tows south of Marthas Vineyard were made to collect biological data on the American hake and to collect live specimens.

Barn-Door Skate

Yellowtail flounder, whiting, butterfish, long-horned sculpin, spiny dogfish, sea raven, eel pout, and skate were among the live specimens brought to the laboratory. Otoliths (ear bones) and stomachs were collected from American hake caught on the cruise.

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OCEAN BOTTOM SEDIMENTS AND MARINE ANIMAL LIFE STUDIED:

M/V "Delaware" Cruise 62-7 (June 11-20, 1962): A study of ocean bottom sediments and the quantitative and qualitative composition of ocean bottom life on the continental shelf south of Nantucket and Marthas Vineyard was the objective of this cruise of the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware completed on June 20, 1962.

Approximately 300 sediment samples were collected on 8 north-south transects across the shelf. In addition, 600 samples of bottom animals were collected. These samples will be analyzed in the laboratory as part of the program studying the relations of bottom-living fish. Fine and medium sands most commonly occurred in shoal water, while the silt-clay sediments were found mostly in deeper water. Water temperature measurements were made at all stations.

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WOODS HOLE BIOLOGICAL LABORATORY IN MASSACHUSETTS DEDICATED:

A Federal fishery program that had a modest beginning at a simple lighthouse station 91 years ago, was honored

Aquarium and maintenance building of U. S. Bureau of Commercial Fisheries Biological Laboratory, Woods Hole, Mass.

June 23, 1962, at the dedication of the new Woods Hole, Mass., Biological Laboratory of the U. S. Fish and Wildlife Service's Bureau of Commercial Fisheries.

The original Fisheries Laboratory at Woods Hole--the first fisheries and marine biological research laboratory in the United States--was established in 1871 at the Lighthouse Station. In 1883, it was moved to land given to the U. S. Commission of Fish and Fisheries, a predecessor agency of the Fish and Wildlife Service. Spencer F. Baird, the first Commissioner of Fish and Fisheries and Secretary of the Smithsonian Institution, also was the first director of the laboratory. The scientific accomplishments of the staff and of visiting scientists from leading universities, who conducted research during summers, gained international attention.

The ravages of time and three hurricanes took a heavy toll. Replacing of facilities at the Woods Hole Laboratory was begun in 1957 and completed in 1961 at a cost of more than $1 million.

The present staff of 25 scientists, supported by 55 technical and administrative personnel, conducts biological and oceanographic research programs concerned with the offshore groundfish of the northwest Atlantic--one of the most valuable fisheries of the world, utilized and managed by 13 nations under agreements established by the International Commission for the Northwest Atlantic Fisheries (ICNAF). The research commitments of the United States under ICNAF agreements are responsibilities of the staff of the Woods Hole Laboratory. The Laboratory's programs are concerned with the problems of conservation of haddock, cod, ocean perch, whiting, flounders, sea scallops, and industrial species. It computes the natural production of these species in order to advise what measures must be taken to achieve a sustained maximum yield. It also collects information necessary for documenting the natural changes that occur in environment and in populations.

The new three-story Laboratory Building has 24,000 square feet of floor space devoted to "wet laboratories," equipped with running sea water, and other laboratories, offices, a scientific library, and conference room.

A second building houses maintenance facilities and an aquarium for experiments on marine fishes, but functions during the summer as a public exhibition. It was visited last year by more than 200,000 persons.

The new dock facilities are designed to accommodate ocean-going vessels, as well as smaller vessels to be used in inshore work. The new fishery-oceanographic research vessel Albatross IV, scheduled for delivery in October 1962, will be docked there.

North Pacific Exploratory Fishery Program

SURVEY OF DEEP-WATER MARINE FAUNA OFF MOUTH OF COLUMBIA RIVER CONTINUED:

M/V "Commando" Cruise 4: The sixth in a series of cruises designed to study deep-water marine animal life along a track line southwest of the Columbia River mouth was completed on June 15, 1962, by the U. S. Bureau of Commercial Fisheries chartered research vessel Commando. Twenty drags of one-hour each were made with a standard 400-mesh eastern otter trawl with a small mesh liner at depths from 50 to 450 fathoms (300 to 2,700 feet) to monitor stations which had been established on previous cruises. Eight additional short drags were made in the area of the track line to supply Dover sole and sablefish for Oregon Fish Commission personnel to tag. The track line was extended from 500 to 1,000 fathoms and stations were located using a high-resolution low-frequency echo-sounder. At each of the deeper stations, a drag was made using a 42-foot shrimp trawl hauled on a single wire with 20-fathom bridles. To help maintain the gear on the bottom, each door was weighted with approximately 150 pounds of steel plate. Stainless steel ball-bearing swivels were needed to eliminate twisting of the wire and bridles. Cable to depth (scope) ratios of less than 1.7 to 1 were used when trawling at the deeper stations.

Samples of fish were collected for the Atomic Energy Commission and delivered to the Laboratory of Radiation Biology, University of Washington, for radiological analysis. Additional samples were collected for the Bureau's Technological Laboratory in Seattle and the College of Fisheries, University of Washington.

The cooperative study with the Oregon Fish Commission to study the migrations of deep-water commercial species in the area of the track line was expanded, resulting in the release of tagged fish--1,626 Dover sole and 576 sablefish--at depths from 50 to 300 fathoms. A total of 3,455 Dover sole and 576 sablefish had already been tagged up to then, with recoveries of 12 Dover sole and 1 sablefish.

Commercial species of fish caught were the same as those taken in previous cruises (see table). Several other species of rockfish were also taken. Dover sole were caught out to 400 fathoms and sablefish to 600 fathoms. The greatest catch of both species was 1,500 pounds per hour, with Dover sole being most abundant at 225 fathoms and sablefish at 325 fathoms. There was a definite trend for larger individuals to be taken in deeper water. The greatest catch of ocean perch was made in 225 fathoms where 2,000 pounds were taken in a 1-hour tow. Other commercial species of fish were not caught in great abundance.

Commercial Species of Fish Caught by M/V Commando During Cruise 4 (May 14-June 15, 1962)

Species	Scientific Name
Sablefish	Anoplopoma fimbria
Dover sole	Microstomus pacificus
English sole	Parophrys vetulus
Petrale sole	Eopsetta jordani
Halibut	Hippoglossus stenolepsis
Turbot	Atheresthes stomias
Hake	Merluccius productus
Ocean perch	Sebastodes alutus

The only commercial species of invertebrates taken in large numbers was the tanner crab (Chionoecetes tanneri). Males were found to be concentrated at 300 fathoms with females most abundant at 375 fathoms. That was in sharp contrast to the winter distribution when both sexes were found concentrated together in 350 fathoms. The distribution was similar to that found at the same time the previous year. Although the catch per hour in numbers in the areas of highest concentration of males and females was greater for females, the larger size of the males resulted in a similar catch per hour in pounds for both sexes (160 pounds per one-hour tow). Deep-water sampling with the shrimp trawl extended the observed depth range of juvenile crabs in the study area down to 1,000 fathoms. A species similar to the tanner crab was being harvested by the Japanese in northern waters and a fishery is just developing in southeastern Alaska. Indications are that large quantities of this crab may exist along our coast but further explorations will be needed in the deeper waters along the continental shelf before the populations can be fully delineated.

The successful extention of the track line to 1,000 fathoms has resulted in the capture of several species of fish and invertebrates new to this study. In particular are the following: (1) a large cottid fish (possibly Cottunculoides), (2) a melamphid fish, (3) several large pycnogonids (sea spiders), and (4) two species of large deep-water shrimp.

Note: See Commercial Fisheries Review, Feb. 1962 p. 32.

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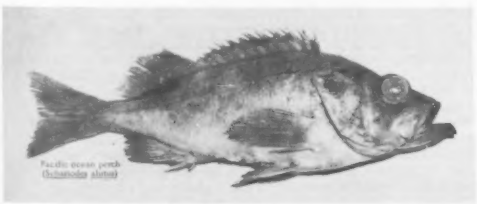
SURVEY OF BOTTOMFISH POPULATIONS IN GULF OF ALASKA CONTINUED:

M/V "John N. Cobb" Cruise 54: An 8-week exploratory bottomfish cruise to the Gulf of Alaska was completed June 8, 1962, by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel John N. Cobb.

The survey was undertaken in cooperation with the International Pacific Halibut Commission and the Alaska Region of the Bureau of Commercial Fisheries. Primary objectives of the survey were to assess the magnitude of latent bottomfish populations in the Gulf of Alaska, and obtain information on the age and size composition of bottomfish encountered.

The area explored extended from Cape St. Elias to Portlock Bank near Kodiak Island. Eighty-three exploratory drags of one-hour each were made with a commercial otter-trawl net. The drags were made in water 40 to 270 fathoms deep. Total catches ranged from 130 to 5,300 pounds and averaged 1,350 pounds per individual drag. Turbot (Atheresthes stomias), flathead sole (Hippoglossoides elassodon), small pollock (Theragra chalcogrammus), and tanner crab (Chionoecetes) dominated the catches. Good catches of up to 2,000 pounds of Dover sole per hour of trawling were taken in Albatross Gully in 250 fathoms of water. The largest catch of Pacific ocean perch (Sebastodes alutus) was 3,000 pounds, and most catches of that species were less than 500 pounds.



While the John N. Cobb was surveying Albatross Gully, personnel aboard the vessel were able to observe the operations of two Russian trawlers. They were estimated to be approximately 160 feet in length and were similar in design to North Atlantic side trawlers. An estimated catch of 15,000 pounds of Pacific ocean perch was observed taken by one of the Russian trawlers after it had trawled for about 1½ hours. No other species except Pacific ocean perch were seen; however, the catch was dumped directly into the hold. The net appeared to be rigged to fish 4 to 5 feet off the bottom.

Note: See Commercial Fisheries Review, Dec. 1961 p. 42, Oct. 1961 p. 24.

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OCEANIC FISH SURVEY OFF PACIFIC NORTHWEST AND CALIFORNIA COASTS:

M/V "John N. Cobb" Cruise 55: To study the oceanic or offshore fish off the coasts of Washington, Oregon, and southern California, was the primary purpose of a 12-week cruise of the U. S. Bureau of Commercial Fisheries exploratory fishing vessel John N. Cobb. Oceanographic data also are to be obtained off the Washington and Oregon coasts. The vessel left Seattle on July 9, 1962.

Phase 1, July 9-29: Albacore tuna investigations in waters between 48° N. latitude and 42° N. latitude and seaward to 130° W. longitude.

Phase 2, August 5-31: California Cooperative Oceanic Fisheries Investigation drag lines 60, 70, 80, 90, 100, and 110. Waters off California from 38° N. latitude to approximately 35.5° N. latitude and seaward to 125° W. longitude.

Phase 3, September 1-21: Gear test evaluation in coastal waters of southern California.

Trolling and midwater trawling will be the main methods for catching fish. All albacore tuna in suitable condition will be tagged and released. Pertinent information on albacore tuna catches will be broadcast to the fishing fleet by radio from the John N. Cobb. Night light fishing stations will be made along the track line of Phase 1 of the cruise. Oceanographic stations will be occupied daily.

During the second phase of the cruise, California Cooperative Oceanic Fisheries Investigation stations on lines 60, 70, 80, 90, 100 and 110 will be occupied using the John N. Cobb's large midwater trawl. All tows will be made, if possible, by retrieving cable to sample equally from maximum depths fished to surface. During the third phase of the cruise, a concentrated effort will be made to determine the fishing capabilities of the large midwater trawl. Information supplied by the La Jolla Biological Laboratory, California Fish and Game, and other sources will be used to determine those areas showing

most promise for conducting midwater trawl experiments.

Oregon

RESEARCH IS KEY TO EXPANDING SHRIMP FISHERY:

Shrimp are being landed by commercial vessels in abundant supply to canneries in the Coos Bay-Charleston area. In Oregon, four canneries are operating in that area, employing an estimated 100 pickers, canners, and other personnel. Since this time of year is normally a slack period in cannery operations, the landings of shrimp are a boon to employment.

Preliminary investigations for possible shrimp-producing areas were first conducted along the Oregon coast in 1951 and 1952 by the Oregon Fish Commission. Although shrimp had been harvested for many years off Alaska, British Columbia, and Puget Sound, Washington, it was not known whether sufficient quantities of shrimp were available to support a commercial harvest in Oregon waters. It was known, however, that shrimp of commercial size did occur to some degree.

The Fish Commission's exploratory cruises in the Coos Bay area were conducted aboard the Nel-Ron-Dic, a commercial otter-trawl vessel. This operation involved the use of heavily-weighted nets towed along the ocean floor in depths of from 300 to 600 feet. Results indicated that a commercial fishery for shrimp was feasible in that area as well as several others along the Oregon coast.

Since that time, the shrimp industry in the Coos Bay-Charleston area has undergone a healthy rate of growth. In place of 1 cannery working part time initially to handle the catch of a few boats, 4 canneries now function full time to accommodate the catches of a sizable fleet of shrimp vessels. Astoria and Brookings areas also support a shrimp fishery, adding further to the importance of this Oregon product.

This is an excellent example of how research into a new field has paid big dividends in boosting local and State economy and providing a new product for the consumer.

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BEHAVIOR OF YOUNG SALMON IN RESERVOIRS BEING STUDIED:

The opening of a new research laboratory at Redmond, Oregon, was announced by the Oregon Fish Commission on July 9, 1962. The Commission's Director of Research, stated that studies will be carried out there on the behavior of young salmon-like fish (salmonids) in reservoirs. "Much more has to be known about the behavior of juvenile salmon in reservoirs," the Director of Research said, "and the purpose of this study is to try and gain the needed information in order to help with the design of future fish passage facilities." This is a phase of the over-all fish passage research program initiated by the Secretary of the Interior in 1961, and the research will be done under a contract from the Bureau of Commercial Fisheries.

Field work for the project will be conducted at Lake Simtustus, behind Pelton Dam on the Deschutes River. Floating traps and small-mesh gill nets will be used to gather specimens and SCUBA gear will be employed for underwater observations. This particular study will last three years with two full years of field work. An identical study under the same program is being conducted by Commission personnel at North Fork Reservoir on the Clackamas River.

Note: See Commercial Fisheries Review, October 1961 p. 12.

Oysters

LONG ISLAND SOUND OBSERVATIONS ON SPAWNING AND SETTING, 1962:

As during the previous 25 years, the biologists of the U. S. Bureau of Commercial Fisheries Biological Laboratory, Milford, Conn., will conduct systematic observations on gonad development, spawning and setting of oysters and starfish in Long Island Sound. These studies have been carried on for several reasons, chiefly, to ascertain the ecological conditions that control time and intensity of setting of the two species and to keep the members of the oyster industry informed as to the conditions existing in the Sound.

The basic ten stations at which observations will be made and samples taken will remain the same as last year. Several supplementary stations may be established later in the season, if conditions require it.

This summer the biologists will continue to evaluate the effectiveness and safety of the chemical method for control of shellfish predators. The center of the studies will be located in one of the relatively isolated inlets, commonly called "gut," which at present maintains an extremely high population of drills rendering any oyster operations virtually impossible.

The studies will be conducted in cooperation with members of the Connecticut oyster industry. It is planned to treat approximately 30 acres of oyster bottom with a mixture of sand, Polystream and Sevin to destroy oyster drills. After the treatment, cultch consisting of old shells will be placed on the bottom to collect a set of oysters.

To verify some of last year's observations, that chemically-treated cultch collects more set, one 4-acre plot will be planted with chemically-treated shells, while an adjacent plot of the same dimensions will be covered with untreated shells.

Extensive studies to be made in the experimental area will include:

(1) Examination of the condition of approximately 150 bushels of mature, ready-to-spawn oysters, which will be planted in the area treated with sand, Polystream, and Sevin.

(2) Observations on time and intensity of setting of oysters and starfish at 5 stations located within the experimental area.

(3) Examination of numerous plankton samples to determine the composition of microscopic plant and animal organisms in sea water, especially the kind and number of mollusc an larvae.

(4) Observations on juvenile clams, both the hard clam (Mercenaria mercenaria) and the soft clam (Mya arenaria), that will be placed on the bottom prior to the treatment and after the treatment. These observations will consist, in part, of observing survival and growth of the different groups.

(5) A team of divers will examine the conditions on the bottom to determine the effectiveness of the treatment and its effects on bottom forms in general.

(6) Numerous oyster drill traps, baited with mussels, will be used to determine the density of drill populations prior to the treatment and after it.

During the past winter the biologists found an extremely simple, effective and safe method of marking shells of mollusks in studies of their growth, etc. The method consists in painting the shells with an instant-dry, waterproof preparation known under the name of "Magic Marker." (Bulletin No. 1, July 9, 1962.)

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MARYLAND OBSERVATIONS, 1962 SEASON:

Since August 24, 1961, oysters generally fattened and grew well during both the fall and spring seasons in the Maryland Chesapeake area, according to the "Special Oyster Bulletin" of the State of Maryland Chesapeake Biological Laboratory, Solomons.

Salinity of the water at Solomons remained near or somewhat above normal since mid-October 1961 after two years of below normal levels.

Water temperatures were above normal during the fall and were below during the winter and early spring. In late April and during May water temperatures were higher than normal. At the end of June the water temperature was at about the seasonal level (approx. 78° F.).

In some areas, oysters reached spawning condition in May and those examined during June from areas near and below Solomons were mostly either partly spawned or ready to spawn.

Oyster Mortalities: Certain known causes of oyster mortality have been less destructive during the past year.

The fungus Dermocystidium remained present from the Solomons area on down-bay. Infection of oysters was light and generally resulted in only minor losses.

The development of "stagnant" or oxygen-deficient water at the bottom was confined to deeper water last season than for several preceding years so that little, if any, deep-water oyster kill resulted.

The parasite MSX, which has proved so destructive in Delaware Bay and certain areas of Virginia, continues to be present in Pocomoke Sound and at scattered points throughout the Tangier Sound area. Fewer infected oysters have been found this summer than were present in samples taken last fall and the majority of samples have been negative. Those taken in June have not yet been completely analyzed.

An encouraging note comes from Delaware Bay where it is reported by Rutgers University that oyster mortalities in New Jersey were much lighter during 1961 than for the previous years of the MSX epidemic. There is indication that the few old oysters which survived the earlier kill are resistant to the parasite and that the new set from these resistant oysters has suffered less mortality from MSX than did the original stock. The development of resistant strains of oysters is believed to be the most effective method by which production in the hard hit MSX areas can be restored.

Evidence from infected oysters grown in tanks of low salinity water at Solomons, and from field observations by the Virginia Fisheries Laboratory on the upper James and on lightly infected seed transplanted to lower salinity grounds in Virginia, continues to indicate recovery from light MSX infection when oysters are moved to low salinities.

Planting seed oysters.

With the opening of the James River seed beds to out-of-state buyers, the Maryland Department of Tidewater Fisheries put into effect a permit system under which oysters from MSX-free portions of the James could be planted in Maryland. The State Laboratory at Solomons this spring examined numerous samples of Virginia seed for which permits were sought. The pattern of infestation as previously described by the Virginia Fisheries Laboratory applied generally to findings for these samples. Since the processing of numerous samplings is very time-consuming, the granting of later permits has been based largely upon knowledge of MSX conditions in the areas from which the seed originated.

The following describes the general MSX picture for the Chesapeake area. Conditions in Virginia are based upon extensive studies by the Virginia Fisheries Laboratory supplemented by examination at Solomons of scattered samples of Virginia seed to be transplanted into Maryland.

James River beds above Wreck Shoal have remained free of MSX and are considered safe for transplanting to uninfected areas. However, they are susceptible to MSX and will become infected when planted in areas where MSX is present. Oysters on Wreck Shoal have shown MSX infection during each of the past two fall seasons when salinities are high but have recovered during the following spring when salinities are low. It is possible that some residual undetected infection may be carried that develops again the following fall.

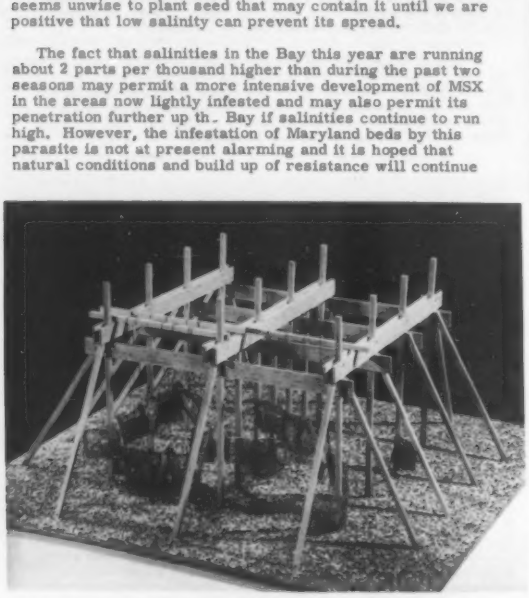
Below Wreck Shoal moderate to heavy MSX infestation has been found throughout the year accompanied by oyster losses that occasionally are severe. Samples of seed from the upper portion of Bennett Creek and Warwick River indicate that low salinity areas of tributaries to the infested portion of the seed area may also remain free of the parasite.

In general, most other major oyster producing waters of Virginia have shown the presence of MSX except in the upper Rappahannock and the Potomac River tributaries. The heaviest infestation and most severe losses have occurred in the lower portions of the Bay area. The only Maryland waters

in which infected oysters have been found are from Hooper Straits through Tangier and Pocomoke Sounds, and in all of the Maryland Seaside. No MSX has yet been found in the Holland Straits seed area.

Very light infestations of MSX can be easily missed since the number of oysters processed seldom can exceed more than 10 to 30 from a given sample. From those portions of the James where the presence of MSX is questionable or extremely light, it is felt that seed can be safely transplanted to the Pocomoke or Tangier Sound areas without endangering native stocks. It probably is capable of producing good yields. It is also likely that such seed would do well in other Maryland areas but, where MSX has not yet been found, it seems unwise to plant seed that may contain it until we are positive that low salinity can prevent its spread.

The fact that salinities in the Bay this year are running about 2 parts per thousand higher than during the past two seasons may permit a more intensive development of MSX in the areas now lightly infested and may also permit its penetration further up th. Bay if salinities continue to run high. However, the infestation of Maryland beds by this parasite is not at present alarming and it is hoped that natural conditions and build up of resistance will continue



This is a model of a rack sustaining setting in depth spat collecting bags arranged to cover depth from bottom to 7 feet. This rack was developed in 1958 at Annapolis by the Bureau of Commercial Fisheries and is not necessarily the same used by the Chesapeake Biological Laboratory.

Setting Observations: Test shells have been exposed in the Solomons-Potomac-Holland Straits area commencing June 4. These are clean shells in wire bags suspended just above the bottom. The shells are changed approximately once a week and the spat attached to the inner faces of twenty shells are counted. Since both the outer and inner faces have been found to catch equally well, the counts given represent the quantity on ten shells (both sides). Assuming that a bushel would contain about 500 of these approximate 4 inch shells, then the count per bushel would be 50 times the figures listed.

From the examination of oyster bar samples, it was found that a very light set of 1962 spat had occurred during the latter part of May as shown by small spat 1/4 to 3/8 inch long that were found on oysters and old cultch removed from the bar during the second week of June. These were found at only three locations in Tangier Sound and ranged from 2 per bushel on Lambstone to 14 per bushel on Great Rock. While the quantity is insignificant, this set is of interest since it is one of the earliest recorded in our area.

No intensive 1962 oyster set had yet occurred as of July 6 on test shells. An unusually heavy barnacle set occurred during the third week in June that amounted to as much as 100 barnacles per shell face at Cinder Hill in Holland Straits.

Shrimp

UNITED STATES SHRIMP SUPPLY INDICATORS, JUNE 1962:

Item and Period	1962	1961	1960	1959	1958
	.....(1,000 Lbs., Heads-Off).....				
Total Landings, So. Atl. and Gulf States:					
August	-	10,944	20,441	18,595	14,173
July	-	10,477	21,746	17,493	13,457
June	10,000	8,220	12,427	14,547	10,241
Jan.-May	20,600	22,732	24,348	20,965	25,856
Jan.-December	-	91,280	141,035	130,660	116,552
Quantity canned, Gulf States 1/:					
August	-	1,206	5,041	2,427	2,809
July	-	3,042	6,319	3,085	4,806
June	5,000	3,744	7,537	7,641	5,107
Jan.-May	2,600	1,661	2,303	3,297	2,002
Jan.-December	-	15,760	28,594	24,679	26,404
Frozen inventories (as of end of each mo.)2/:					
August 31	-	12,728	20,171	23,780	15,274
July 31	-	14,849	17,397	22,357	12,351
June 30	4/	19,416	15,338	19,283	10,664
May 31	13,685	24,696	17,540	21,137	11,013
April 30	15,637	27,492	20,502	23,331	12,211
January 31	-	31,842	34,332	30,858	17,963
Imports 3/:					
August	-	6,743	6,407	5,107	6,628
July	-	6,635	7,319	7,861	6,340
June	4/	8,065	8,932	8,300	6,018
May	11,221	8,278	9,902	8,264	5,666
Jan.-April	43,383	40,825	32,531	33,262	20,594
Jan.-December	-	126,268	113,418	106,555	85,393

1/Pounds of headless shrimp determined by multiplying the number of standard cases by 33.
2/Raw headless only; excludes breaded, peeled and deveined, etc.
3/Includes fresh, frozen, canned, dried, and other shrimp products as reported by the Bureau of the Census.
4/Not available.
Note: Data for 1962 and 1961 are preliminary. June 1962 data estimated from information published daily by the New Orleans Fishery Market News Service. To convert shrimp to heads-on weight multiply by 1.68.

South Atlantic Exploratory Fishery Program

CALICO SCALLOP EXPLORATIONS OFF NORTH CAROLINA:

M/V "Silver Bay" Cruise 39: To determine the availability of scallops northward of Cape Lookout was the first purpose of this cruise. A second purpose was to assess the animal life of the area off the North Carolina coast, primarily between 50 and 100 fathoms. The 20-day trip (completed June 12, 1962) was made by the exploratory fishing vessel

Silver Bay of the U. S. Bureau of Commercial Fisheries.

Between Capes Lookout and Hatteras 70 stations were dredged to determine the status of the calico scallop (Pecten gibbus) resource earlier located by the M/V Silver Bay and which passed out of the fishery during 1961. Mixed dead shell (mostly Pecten) was dredged throughout the area surveyed. The only live commercial-size scallops were several taken in 19 fathoms near Cape Lookout. In the general area off Core Banks where commercial concentrations were located before, small seed scallops (3 to 5 millimeters in diameter) attached to the dead shells were present in large numbers at several stations. Commercial-size scallops were not found in quantity in the survey area at the time.

A total of 68 stations were dredged north of Cape Hatteras. Sea scallops (Pecten grandis) were caught in depths from 20 to 58 fathoms between latitudes 35°24' and 36°32' N. Catches ranged up to 5¼ bushels of scallops (81 to 158 millimeters in diameter, 110 average) per 30-minute drag. Scallops as small as 14 mm. in diameter were taken. The best depth for larger catches was 39½ fathoms and meat counts averaged 30 to 35 per pound.

Fish trawling with 40- and 60-foot 2-seam balloon trawls was tried at 25 stations, primarily between 50 and 100 fathoms eastward and north from Cape Lookout to the Virginia boundary. Catches were small. Lobsters (Homerus americanus) were taken occasionally as far south as latitude 35°56.5' N.

On June 6 the Silver Bay encountered a U.S.S.R. exploratory fishing vessel off the North Carolina coast north of Cape Hatteras. M/V Silver Bay personnel were invited aboard and learned that the vessel was exploring for offshore menhaden stocks. On June 11 what appeared to be a sistership was observed along the 20-fathom curve off South Carolina.

Tuna

FIRST RECORDED SKIPJACK MIGRATION FROM EASTERN PACIFIC TO HAWAII:

A 26-pound skipjack tuna captured on June 12, 1962, by the sampan Yellowfin off Oahu has provided the first evidence of movement of this species from the fishing grounds off the American coast into Hawaiian waters, according to the Hawaii Biological Laboratory of the U. S. Bureau of Commercial Fisheries.

Skipjack tuna

This skipjack was tagged on September 5, 1960, in the Eastern Pacific, off Baja California about 20 miles WSW. of Turtle Bay (approximate coordinates, 27°30' N. lat.; 115° W. long.) by scientists of the Inter-American Tropical Tuna Commission on board the San Diego clipper M/V Westport. At time of release the fish was estimated to have weighed between 6 and 7 pounds. During the 22 months the skipjack grew about 19 pounds and travelled a minimum of 2,500 miles. The fish, on recovery, was in excellent condition, with the tagging wound perfectly healed.

In the past few years, since large-scale tagging of tuna has been started in the Pacific, there have been several spectacular trans-oceanic recaptures of albacore which were tagged off the American coast and retaken by Japanese fishermen. Skipjack, although they have been tagged in large numbers and quite successfully, as attested by good percentages of tagged fish recaptured, have not hitherto been shown to move from one fishery to another. For example, the Bureau's scientists have released over 13,000 marked skipjack in the central Pacific area, of which 1,331 have been recaptured, all by Hawaii fishermen. Releases of over 80,000 skipjack in eastern Pacific waters by scientists of the Inter-American Tropical Tuna Commission and California Department of Fish and Game have produced many recaptures, all but the latest one being within the area of the West Coast fishery. Much skipjack is fished in Japanese waters, and some have been tagged there in the past, but there has been no indication of any interchange between the far western Pacific and the other areas where this species is exploited.

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NEW CANNERY BEING BUILT IN PUERTO RICO:

A new United States firm, recently established, with offices in New York City, is building a tuna cannery in Mayaguez, Puerto Rico. This was announced in April 1962 by the President of the new firm.

The new cannery firm was organized by a New York-based investment and development company which operates in some 20 countries.

Scheduled to start canning tuna for private label customers next November, the new packing plant will cover an area of 60,000 square feet and include a 1,000-ton capacity freezer. Eventually it will employ from 200 to 300 persons. The new project is being established with the cooperation of Puerto Rico's Economic Development Administration and involves an over-all investment of $1.7 million.

This is the third company to locate a tuna cannery in the maritime zone of Mayaguez, on the Island's west coast 108 miles from San Juan.

U. S. Fishing Vessels

FISHERIES LOAN FUND AND OTHER FINANCIAL AID FOR VESSELS, APRIL 1-JUNE 30, 1962:

From the beginning of the program in 1956 through June 30, 1962, a total of 1,169 loan applications for $33,008,423 were received by the U. S. Bureau of Commercial Fisheries, the agency administering the Federal Fisheries Loan Fund. Of the total, 618 applications ($14,646,311) have been approved, 405 ($10,599,362) have been declined or found ineligible, 123 ($5,726,011) have been withdrawn by applicants before being processed, and 23 ($407,011) are pending. Of the applications approved, 251 ($1,629,728) were approved for amounts less than applied for.

The following fishery loans were approved from April 1, 1962, through June 30, 1962:

New England Area: Sheldon S. Kent, Sr., Fairhaven, Mass., $98,000; and Boat Sunbeam, New Bedford, Mass., $9,200.

South Atlantic and Gulf Area: G. Conrad and Claudia Rogers, Darien, Ga., $15,271; W. J. Pyron, St. Marys, Ga., $12,000; Tilman P. Charpentier, Galliano, La., $11,825; Jacomine Valence, Jr., Westwego, La., $57,240; and Henry W. Humphreys, Brownsville, Tex., $36,800.

California: Louis E. Albin, Crescent City, $6,864; Jim M. and Bernice J. Stillman, Long Beach, $13,445; Harold C. Buckman, Morro Bay, $1,613; Raymond Wadsworth, San Leandro, $9,000; and Ivan Goyette, San Pedro, $10,269.

Pacific Northwest Area: John Edelman, Anacortes, Wash., $10,000; Boris Olich, Anacortes, Wash., $38,000; Charles R. Beechey, Ocean Park, Wash., $8,000; Robert S. Kanekkeberg, Port Orchard, Wash., $6,000; Mathias J. Hoddevik, Seattle, Wash., $9,000; Bernard and Richard Linvog, Seattle, Wash., $21,750; Dan Luketa, Seattle, Wash., $33,500; and Clayton H. Harris, Tacoma, Wash., $25,000.

Alaska: Vernon Eckman, Juneau, $10,000; Peter N. Holm, Juneau, $81,530; and Ralph D. Hillmer, Ketchikan, $1,093.

Under the Fishing Vessel Mortgage Insurance Program (also administered by the Bureau) during the second quarter of 1962, approval was granted for the insurance of mortgages on fishing vessels owned by the following and in the amounts indicated: International Tuna Co., San Diego, Calif., $527,490; Joseph R. Fribrock, Seattle, Wash., $30,546. Under this program, which started July 5, 1960, approval was granted before the last quarter of 1961 to the following: Major J. Casey Corp., New Bedford, Mass., $60,000; Sylvester Maloney, New Bedford, Mass., $60,000; Ric-Man Shrimp Co., Inc., Tampa, Fla., $34,500; Joseph R. Fribrock, Seattle, Wash., $75,000. Since the start of this program, 12 applications were received for $1,402,346. Of the total, 9 applications have been approved for $937,346.

In the Fishing Vessel Construction Differential Subsidy program, the following construction differential subsidies were approved during the second quarter of 1962: Boston Fishing Boat Co., Inc., Boston, Mass., $161,379; Jacobsen Fishing Co., Inc., Fairhaven, Mass., $76,750; Trawler Jeanne D'Arc, Inc., Rockland, Maine, $70,814; Charlevoix Transit Co., Sturgeon Bay, Wis., $161,379. The first approval in this program was made in March 1961. The amount approved for subsidy represents one-third the cost of a new vessel. Since the beginning of the program on June 12, 1960, 10 applications were received for $699,313, of which 5 applications were approved for $507,646. Approval of 2 applications under this program is pending. Three applications from ineligible fisheries were disapproved.

Note: See Commercial Fisheries Review, May 1962 p. 32.

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DOCUMENTATIONS ISSUED AND CANCELLED, MAY 1962:

During May 1962, a total of 47 vessels of 5 net tons and over were issued first documents as fishing craft, as compared with 63 in May 1961. There were 31 documents cancelled for fishing vessels in May 1962 as compared with 24 in May 1961.

Table 1-U.S. Fishing Vessels 1/--Documentations Issued and Cancelled, by Areas, May 1962 with Comparisons

Area (Home Port)	May 1962	May 1961	Jan.-May. 1962	Jan.-May. 1961	Total 1961
	(Number)				
Issued first documents 2/:					
New England	4	4	13	15	33
Middle Atlantic	1	1	2	2	12
Chesapeake	4	4	16	25	75
South Atlantic	3	3	13	15	44
Gulf	10	18	38	52	103
Pacific	25	32	62	70	149
Great Lakes	-	1	-	5	12
Puerto Rico	-	-	-	2	2
Total	47	63	144	186	430
Removed from documentation 3/:					
New England	3	1	11	6	20
Middle Atlantic	5	3	24	15	32
Chesapeake	1	2	6	18	28
South Atlantic	1	3	16	11	29
Gulf	12	5	46	45	104
Pacific	9	10	59	44	111
Great Lakes	-	-	8	7	17
Hawaii	-	-	3	-	-
Total	31	24	173	146	341

1/For explanation of footnotes, see table 2.

Table 2-U.S. Fishing Vessels--Documents Issued and Cancelled, by Tonnage Groups, May 1962

Gross Tonnage	Issued 2/	Cancelled 3/
	.....(Number).....	
5-9	12	5
10-19	15	9
20-29	3	2
30-39	4	3
40-49	2	1
50-59	2	2
60-69	1	3
70-79	4	2
80-89	-	1
110-119	-	1
120-129	1	-
190-199	-	1
210-219	1	-
240-249	-	1
480-489	2	-
Total	47	31

1/Includes both commercial and sport fishing craft. A vessel is defined as a craft of 5 net tons and over.
2/Includes redocumented vessels previously removed from records. Vessels issued first documents as fishing craft were built: 32 in 1962, 1 in 1961, 2 in 1960, 1 in 1959, 1 in 1955, 1 in 1953, 1 in 1951, 6 prior to 1951, and 2 unknown. Assigned to areas on the basis of their home ports.
3/Includes vessels reported lost, abandoned, forfeited, sold alien, etc.
Source: Monthly Supplement to Merchant Vessels of the United States, Bureau of Customs, U. S. Treasury Department.

U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, APRIL 1962:

Imports of fresh, frozen, and processed edible fish and shellfish into the United States in April 1962 were down 11.8 percent in quantity and 7.5 percent in value as compared with the previous month. During that period there were greater imports of fish blocks or slabs, canned salmon (mostly from Japan), frozen cooked tuna loins and discs, frozen shrimp, canned sardines not in oil, and live lobsters from Canada. But imports were down for all types of fillets and steaks, fresh and frozen salmon (mostly from Canada), frozen tuna, canned tuna in brine, canned sardines in oil, canned crab meat, and canned oysters (mostly from Japan).

Compared with the same month in 1961, the imports in April 1962 were up 29.5 percent in quantity and 47.4 percent in value. Higher prices for most imported products and an increase in the imports of higher-priced products account for the greater increase in the value. This April there were more imports of frozen cod, ocean perch, blocks and slabs, and swordfish fillets (from Japan), frozen salmon (from Canada), and canned salmon (from Canada and Japan), frozen tuna (from Japan, West Africa, and Peru), canned light meat tuna in brine (from Japan), canned sardines in oil, canned crab meat (from Japan), live lobsters (from Canada), and frozen spiny lobster tails (from Australia, New Zealand, and South Africa), frozen shrimp, and frozen scallops (from Canada). Imports dropped off for frozen haddock fillets, canned white meat tuna in brine (from Japan), canned sardines not in oil (from South Africa), and frog legs (from Cuba).

In the first four months of 1962, imports were up 14.0 percent in quantity and 22.9 percent in value as compared to the same period in 1961. The greater increase in value was because of the higher prices which prevailed in the first part of this year for nearly all imported fishery products. This year there were more imports of blocks and slabs (the increase was mostly from Norway and Denmark), sea catfish fillets (increase mostly from West Germany), canned salmon (from Japan and Canada), frozen tuna (mostly from Japan, Ecuador, West Africa, and Peru), canned tuna (from Japan), canned sardines in oil, frozen shrimp, frozen scallops, live lobsters, and spiny lobster tails. Imports were down for swordfish fillets (from Japan), frozen salmon from Canada, canned sardines not in oil (from South Africa), canned oysters (from Japan), and frozen frog legs (from Cuba).

U. S. Imports and Exports of Edible Fishery Products, April 1962 with Comparisons

Item	Quantity				Value			
	Apr.		Jan.-Apr.		Apr.		Jan.-Apr.	
	1962	1961	1962	1961	1962	1961	1962	1961
	(Millions of Lbs.)				(Millions of $)			
Imports:								
Fish & Shellfish: Fresh, frozen, & processed 1/	90.8	70.1	366.7	321.8	30.8	20.9	125.1	101.8
Exports:								
Fish & Shellfish: Processed only 1/ (excluding fresh & frozen)	2.0	1.7	12.1	10.3	1.2	1.1	5.2	5.1

1/ Includes pastes, sauces, clam chowder and juice, and other specialties.

United States exports of processed fish and shellfish in April 1962 were up 17.6 percent in quantity and 9.1 percent in value as compared with April 1961. The increase was due to greater exports this April of canned and frozen salmon, sardines not in oil, and squid (principally to Greece). Exports were down for canned mackerel; and because of the scarcity on the United States market, exports were down for frozen shrimp, canned shrimp, and canned oysters.

Compared with the previous month, the exports in April 1962 were down 45.9 percent in quantity, and the value was down 7.7 percent. The lower-priced products like canned squid were exported in greater amounts in April, with some increase in the exports of canned salmon and oysters. Exports dropped for canned mackerel, canned shrimp, frozen shrimp, and frozen salmon.

Processed fish and shellfish exports for the first four months of 1962 were up 17.5 percent in quantity, but the value was up only 2 percent as compared with the same period of 1961. The following products were exported in substantially greater quantities in 1962: canned mackerel, frozen salmon, canned salmon, and canned squid; but exports dropped for canned sardines not in oil, canned and frozen shrimp, and canned oysters. Since most of the increase in exports January-March this year was in the lower-priced products, the value of the exports did not increase at the same rate as the quantity.

Source: United States Foreign Trade (Trade by Commodity), Summary Report FT 930-E, April 1962, U. S. Department of Commerce.

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EDIBLE FISHERY PRODUCTS, MAY 1962:

Imports of fresh, frozen and processed edible fish and shellfish into the United States in May 1962 were up 20.2 percent in quantity and 11.7 percent in value as compared with the previous month. During that period there were greater imports of fish blocks or slabs, cod fillets, flounder fillets (mostly from Canada), frozen swordfish fillets (mostly from Japan), sea catfish fillets, frozen tuna other than albacore, canned tuna (mostly from Japan), canned sardines not in oil (mostly from South Africa), live lobsters from Canada, canned lobster meat from Canada, frozen shrimp, and sea scallops (mostly from Canada). But imports were down for canned salmon (from Canada and Japan), frozen albacore tuna, canned sardines in oil, canned crab meat from Japan, and canned oysters (mostly from Japan).

Compared with the same month in 1961, the imports in May 1962 were up 30.8 percent in quantity and 32.3 percent in value. Most fishery products were imported in greater quantity this May, and imports were up substantially for fish blocks or slabs, canned salmon (mostly from Japan), frozen tuna, canned albacore tuna (mostly from Japan), canned sardines (in oil and not in oil), frozen shrimp, and fresh and frozen scallops from Canada. Cod fillets was the only item showing a sizable decline.

In the first five months of 1962, imports were up 17.4 percent in quantity and 24.8 percent in value as compared to the same period in 1961. The greater increase in value was because of the higher prices which prevailed in the first part of this year for nearly all imported fishery products.

This year there were more imports of fish blocks and slabs, flounder fillets from Canada, sea catfish fillets (increase mostly from West Germany), canned salmon (from Japan and Canada), frozen tuna (increase mostly from Japan, British West Pacific Islands, Ecuador, Peru, and British West Africa), canned tuna (from Japan), canned sardines in oil, frozen shrimp, scallops, live lobsters (from Canada), and canned lobster meat from Canada. Imports were down for cod fillets (from Iceland), haddock fillets (from Canada and Iceland), fresh and frozen salmon from Canada, canned oysters from Japan, and frog legs from Cuba. The increase in canned sardines in oil reflects the small Maine pack for the 1961 season.

U. S. Imports and Exports of Edible Fishery Products, May 1962 with Comparisons

Item	Quantity				Value			
	May		Jan.-May		May		Jan.-May	
	1962	1961	1962	1961	1962	1961	1962	1961
	(Millions of Lbs.)				(Millions of $)			
Imports:								
Fish & Shellfish: Fresh, frozen, & processed 1/	109.1	83.4	475.8	405.2	34.4	26.0	159.5	127.8
Exports:								
Fish & Shellfish: Processed only 1/ (excluding fresh & frozen)	2.1	1.4	14.2	11.7	0.7	0.6	5.9	5.8

1/Includes pastes, sauces, clam chowder and juice, and other specialties.

United States exports of processed fish and shellfish in May 1962 were up 50.0 percent in quantity and only 13.3 percent in value as compared with May 1961. Exports of canned sardines not in oil were much higher this May and there was some increase in the exports of frozen salmon, frozen oysters to Canada, and canned squid. But exports were down for frozen shrimp, canned shrimp, and canned mackerel.

Compared with the previous month, the exports in May 1962 were up 5.0 percent in quantity, but the value was down 41.6 percent. The increase in quantity was due to greater exports of canned sardines not in oil, canned mackerel, frozen shrimp, frozen oysters, and canned squid (to the Philippines). The over-all decline in value was mainly due to a sharp drop in exports of canned salmon to the United Kingdom. Exports of frozen salmon and canned shrimp were also down.

Processed fish and shellfish exports for the first five months of 1962 were up 21.4 percent in quantity, but the value was up only 1.7 percent as compared with the same period of 1961. The following were exported in substantially greater quantities in 1962: canned mackerel, frozen salmon, and canned squid (to Greece and the Philippines). Because of the scarcity on the United States market, exports were down for canned sardines not in oil, canned sardines in oil, frozen shrimp, canned shrimp, and frozen oysters (principally to Canada). Since most of the increase in exports January-May this year was in the lower-priced products, the value did not increase at the same rate as the quantity.

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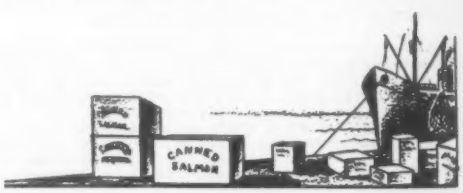
SELECTED FISHERY PRODUCTS, JANUARY-MARCH 1962:

Imports (January-March 1962 as compared to January-March 1961): During the first quarter of 1962, a number of fishery products showed important increases in imports over the similar period of last year; included were fresh and frozen tuna, tuna loins, northern lobster, canned salmon, sardines canned in oil, scallops, fish meal, and fish solubles. Significant decreases were recorded in the imports of canned bonito and yellowtail, canned oysters, fresh and frozen salmon, canned sardines (not in oil), frog legs, and swordfish.

Imports of groundfish and ocean perch fillets and blocks were about the same in 1962 as in 1961. Imports of fillets other than groundfish increased 30 percent.

All tuna categories showed a decided increase, with the exception of tuna canned in oil which decreased 17 percent and bonito and yellowtail which decreased 33 percent. Fresh or frozen tuna imports increased 29 percent, Japan being the leading supplier. Canned tuna in brine increased 21 percent, the greater part being shipped from Japan.

India and Pakistan doubled their exports of shrimp to the United States this year, but shrimp exports from Mexico, El Salvador, Panama, and British Guiana dropped. The net result was a 5-percent increase in United States shrimp imports in the first quarter of 1962.



Receipts of canned salmon principally from the two main suppliers--Canada and Japan--increased 46 percent, but im-

Table 1-U.S. Imports of Selected Fishery Products, January-March 1962 with Comparisons

Commodity	January-March	
	1962	1961
	....(1,000 Lbs.)....	
Groundfish and ocean perch:		
Fillets	19,567	20,925
Blocks or slabs	28,597	27,479
Total	48,164	48,404
Fillets other than groundfish:		
Flounder	3,599	3,008
Fresh-water fish	2,453	1,979
Other	5,628	4,015
Total	11,680	9,002
Swordfish fillets, etc.	5,808	6,644
Tuna, fresh or frozen:		
Albacore	30,519	25,883
Other	40,528	28,985
Total	71,047	54,868
Tuna, loins and discs	2,608	1,878
Tuna, canned in brine:		
Albacore	7,138	6,129
Other	7,329	5,779
Total	14,467	11,908
Tuna, canned in oil	111	133
Bonito and yellowtail, canned	2,120	3,162
Crab meat, canned	952	995
Lobsters, fresh or frozen:		
Northern	3,937	3,031
Spiny	10,994	11,362
Lobsters, canned	405	540
Oysters, mostly canned	1,915	2,429
Salmon:		
Fresh or frozen	1,055	1,718
Canned	1,950	1,332
Sardines:		
Canned in oil	11,488	7,374
Canned not in oil	2,036	3,830
Scallops	1,717	1,026
Shrimp (mostly frozen)	33,164	31,617
Frog legs	249	495
	.....(Tons).....	
Fish meal	62,774	44,333
Fish solubles	2,830	509

ports of fresh or frozen salmon declined 39 percent. Norway and Denmark supplied most of the 56-percent increase in canned sardines in oil. Imports of canned sardines not in oil decreased 47 percent, the Republic of South Africa shipping only half the quantity shipped in the same period last year.

Imports of sea scallops increased 67 percent. Canada and Japan were the major suppliers; Canada almost doubled its shipments.

Imports of fresh or frozen lobster from Canada increased 30 percent. Other increases were from Brazil, Australia, and New Zealand.

Fish solubles more than tripled shipments in the corresponding period of 1961.

Imports of fish meal increased 42 percent, Canada and Peru supplying the major share.

Table 2-U.S. Exports of Selected Fishery Products, January-March 1962 with Comparisons

Commodity	January-March	
	1962	1961
	....(1,000 Lbs.)....	
Fish oils	41,323	36,549
Oysters, shucked	99	249
Salmon:		
Fresh or frozen	562	197
Canned	2,611	2,649
Mackerel, canned	2,013	975
Sardines:		
Canned not in oil	1,430	3,085
Canned in oil	45	65
Shrimp:		
Frozen	613	639
Canned	349	562
Squid, canned	2,631	413
Misc. canned fish	132	156
Misc. fresh or frozen fish	985	643

Exports (January-March 1962 as compared to January-March 1961):

Fresh or frozen salmon exports were almost three times those of the same period in 1961. Canned salmon exports remained about the same. El Salvador took 85 percent of total exports of canned mackerel which more than doubled the first quarter exports of a year before. Exports of canned sardines, not in oil, decreased 54 percent. Exports of fresh or frozen shrimp decreased 4 percent and of canned shrimp 48 percent below shipments in the first quarter a year ago.

* * * * *

IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA:

United States imports of tuna canned in brine during January 1-June 30, 1962, amounted to 27,679,895 pounds (about 1,318,100 std. cases), according to data compiled by the Bureau of Customs. This was 17.4 percent more than the 23,575,216 pounds (about 1,122,600 std. cases) imported during January 1-June 30, 1961.

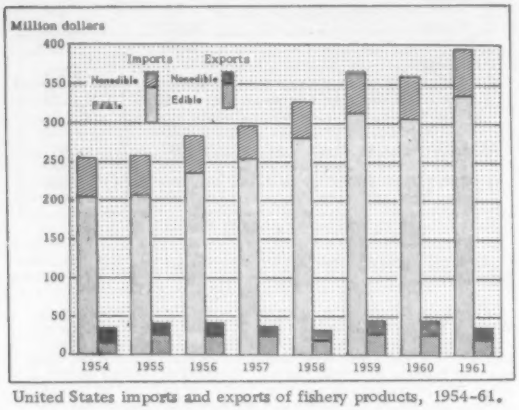
The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1962 at the 12½-percent rate of duty is limited to 59,059,014 pounds (about 2,812,000 std. cases of 48 7-oz. cans). Imports in excess of the quota are dutiable at 25 percent ad valorem.

* * * * *

IMPORTS AND EXPORTS OF FISHERY PRODUCTS, 1957-1961:

United States foreign trade in fishery products (imports and exports of domestic products) was valued at $432 million in 1961--an increase of $27.5 million as compared

with the previous year. The value of fishery products imported for consumption was $397 million--the highest on record. It exceeded the former record established in 1959 by 8 percent and was 10 percent above 1960. The value of fishery products exported was $35 million--a decline of 21 percent from the previous year and the lowest since 1958.



United States imports and exports of fishery products, 1954-61.

Imports of edible products in 1961 totaled 1.1 billion pounds valued at a record high of nearly $336 million. Compared with 1960, the quantity remained about the same but the value increased by 9 percent. The gain in value was due to generally higher prices and changes in the composition of the imports. Major increases occurred in imports of groundfish fillets and blocks, fresh or frozen shrimp, tuna canned in brine, and sardines. Imports were down for canned salmon, fresh or frozen sea herring, and tuna.

Imports of nonedible fishery products amounted to over $61 million--16 percent more than in 1960. The gains were for fish meal, sperm whale oil, and cultured pearls.

Edible fishery products exported in 1961 totaled 40 million pounds with a value of $19.6 million--a decrease of 35 percent in quantity and 24 percent in value as compared with the previous year. Exports of nonedible domestic products, valued at $15 million, were 18 percent less than in 1960.

Exports of foreign fishery products amounted to $6.5 million in 1961 as compared with $3.4 million the previous year.

Note: See Commercial Fisheries Review, May 1962 p. 35.

* * * * *

STATISTICAL DETAIL FOR IMPORTS BEYOND THAT PROVIDED IN NEW TARIFF CLASSIFICATION:

The statistical classifications currently used in compiling data for imports and presented in Schedule A, "Statistical Classification of Commodities Imported into the United States," are based on the Tariff classifications contained in the Tariff Act of 1930. With the enactment of Public Law 87-456, "Tariff Classification Act of 1962," this foundation is changed, therefore necessitating a revision of the statistical classification structure to align it with the new Act. To provide importers and Customs officers with reporting instructions which integrate statistical requirements with the determination of rates of duty, as is done in the current "United States Import Duties Annotated," it is contemplated that the revised statistical classifications will be put into effect concurrently with the effective date of the new tariff, which is January 1, 1963.

The Tariff Commission, Bureau of Customs, and Bureau of the Census (with the guidance of the Interagency Advisory Committee on Foreign Trade Statistics) will determine the additional statistical classifications to be provided beyond those already provided in the new structure. In so doing, every effort will be made to carry forward as much of the present statistical detail as possible without violating the principle of eliminating the illogical classes and anomolies of the old structure which is based on the 1930 Tariff Act categories. At the same time consideration will be given to recommendations from users of the statistics for retaining or combining present statistical classes as well as for providing additional statistical detail, all within the framework of the 1962 Tariff Classification Act.

Whiting

RESULTS OF STUDY ON IMPROVING QUALITY:

The results of a year's study by the U.S. Bureau of Commercial Fisheries Technological Laboratory at Gloucester, Mass., on improving the quality of whiting were presented at an industry meeting in June 1962. The study was requested by industry leaders.

Representatives of 14 whiting firms or associations, from Massachusetts and Maine, and officials from the National Fisheries Institute and the States of Maine and Massachusetts heard the Bureau's reports on its studies conducted on handling and processing whiting, both on the vessel and ashore, and on developing and marketing new whiting products to stimulate this New England industry and the use of this greatly underutilized fishery resource. The whiting industry ranks eleventh in volume and twentieth in value in United States fisheries.

The Bureau's investigations and laboratory work were aimed at finding ways to eliminate or minimize problems that have continued to plague the industry. Bureau technologists explained that although the physical attributes and plentiful supply of whiting make it more desirable than some other species for fried fish, it loses its initial delicious quality at a more rapid rate unless handled with greater than ordinary care.

The Bureau also pointed out to the industry a variety of acceptable fish products made of whiting, including canned whiting, which could be marketed. New whiting products made up and tested for acceptability, taste appeal, and storage life at the Bureau's laboratory included such items as croquettes, burgers, steamed and smoked sausages, smoked whiting, and a freeze-dried patty. Eight of those products were taste-tested at the industry meeting and were termed "encouraging." However, as the Bureau's report commented, "None of these products can be marketed successfully for

any period of time unless the highest quality fish is used consistently."

To reach and maintain this necessary standard of high quality, the Bureau outlined actions the industry could take both aboard the vessels and in the processing plants, such as providing shelving in the vessels' storage pens because whiting is a soft fish particularly susceptible to bruising damage; reducing dock-side layovers to no more than 12 to 14 hours; and using easily-cleaned, salt-resistant aluminum for the fish-hold penboards. Bureau tests resulted in the recommendation of storing fish on the vessels and at the processing plants in tanks of sea water refrigerated to 30° F., eliminating most of the problems arising from storage in ice, and improving greatly the quality of the whiting.

The Bureau's report also included recommendations for increasing efficiency of processing plant operations, reducing labor costs, and new methods of processing. These recommendations were developed by two members of the Bureau's laboratory staff who visted 26 whiting plants during the year.

Wholesale Prices

EDIBLE FISH AND SHELLFISH, JUNE 1962:

As landings continued to increase seasonally, the June wholesale price index for edible fishery products (fresh, frozen, and canned) dropped more than 1.0 percent from the previous month, but was up almost 13.0 percent as compared to June 1961.

Scene on Fulton Street dock (East River) of Fulton Fish Market showing journeyman preparing to load truck.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, June 1962 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes 2/ (1957-59=100)			
			June 1962	May 1962	June 1962	May 1962	April 1962	June 3/1961
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					4/118.3	119.4	118.9	104.3
Fresh & Frozen Fishery Products:					4/117.5	118.1	117.2	101.0
Drawn, Dressed, or Whole Finfish:					114.3	119.9	119.1	106.7
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.08	.08	59.5	65.7	91.6	67.0
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.44	.41	130.1	122.2	133.1	109.5
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.96	1.00	134.5	139.7	120.5	122.2
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.69	.71	103.0	106.0	126.9	91.0
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.45	.71	73.7	116.3	139.2	92.5
Processed, Fresh (Fish & Shellfish):					5/	119.7	120.4	104.1
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.32	.33	76.5	80.1	91.1	70.4
Shrimp, lge. (26-30 count), headless, fresh	New York	lb.	1.04	1.02	121.9	119.6	116.0	90.8
Oysters, shucked, standards	Norfolk	gal.	7.50	7.50	126.5	126.5	130.7	126.5
Processed, Frozen (Fish & Shellfish):					112.7	110.2	108.0	88.9
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.38	.40	96.3	100.1	100.1	98.8
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.33	.33	96.7	96.7	96.7	95.2
Ocean perch, lge., skins on, 1-lb. pkg.	Boston	lb.	.30	.32	106.1	110.4	115.7	99.9
Shrimp, lge. (26-30 count), brown, 5-lb. pkg.	Chicago	lb.	1.03	.99	122.2	116.8	112.7	81.8
Canned Fishery Products:					120.1	122.1	122.1	110.5
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	28.50	28.50	124.2	124.2	124.2	122.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	12.15	12.15	107.9	107.9	107.9	97.7
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 24 cans/cs.	Los Angeles	cs.	5.25	5.25	118.5	118.5	118.5	101.5
Sardines, Maine, keyless oil, 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	11.31	12.81	145.1	164.3	164.3	112.2

1/Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs. These prices are published as indicators of movement and not necessarily absolute level. Daily Market News Service "Fishery Products Reports" should be referred to for actual prices.
2/Beginning with January 1962 indexes, the reference base of 1947-49=100 was superseded by the new reference base of 1957-59=100.
3/Recomputed to be comparable to 1957-59=100 base indexes.
4/Because of an error, this index will be revised when the July 1962 index is released. Actual index is slightly lower than shown.
5/Not available.

Fresh Western halibut wholesale prices at New York City rose from May to June in spite of the seasonal landings in the Pacific Northwest. The demand for halibut was quite strong because frozen stocks at the beginning of the season were almost completely sold out. During the same period, prices were down for all other products under the drawn, dressed, or whole finfish subgroup and the index dropped 4.7 percent. Prices were down for fresh large haddock by 9.4 percent, fresh king salmon at New York City by 3.7 percent, Lake Superior whitefish at Chicago by 2.8 percent, and Lake Michigan yellow pike at New York City by 36.6 percent. Salmon supplies in June were moderate, the demand continued good, but the market was not as steady as in May. Heavier seasonal landings of Great Lakes yellow pike were responsible for the price drop in that product. The market for Great Lakes whitefish although still relatively strong in June was not at the same level as in May. Compared with June 1961, the subgroup index this June was up 7.1 percent because of higher prices for fresh and frozen halibut, large and medium king salmon, and Lake Superior whitefish. These increases were somewhat offset by lower prices for fresh drawn haddock and fresh yellow pike.

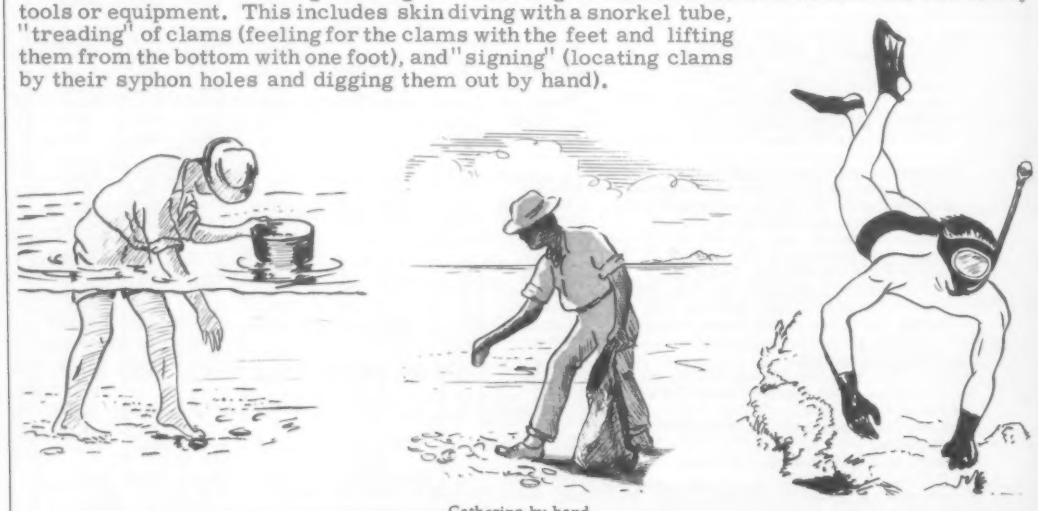
From May to June, fresh haddock fillet prices at Boston were down 4.5 percent. With continued light landings in the South Atlantic States, fresh shrimp prices at New York City rose 1.9 percent during the same period. As a result, the processed fresh fish and shellfish index for June was somewhat lower than the May index. The subgroup index this June was up substantially as compared with the same month in 1961 because of higher prices for fresh shrimp (up 34.3 percent) and fresh haddock fillets (up 13.8 percent).

The price index for processed frozen fish and shellfish in June 1962 was up 2.3 percent from the previous month and 26.8 percent higher than a year earlier only because of higher frozen shrimp prices at Chicago. Continued light supplies in June caused a price advance for frozen shrimp of 4.6 percent from the previous month and of 49.4 percent from June 1961. Prices for frozen fillets of haddock did not change from May to June, but were down 3.8 percent for flounder fillets and 3.9 percent for ocean perch fillets. Compared to June 1961, prices were up for haddock and ocean perch fillets, and down for flounder fillets.

The June index for the canned fishery products subgroup was down 1.6 percent from May, but was up 8.7 percent as compared with June 1961. Of the items in the subgroup, the only change from May to June was for canned Maine sardines--prices dropped 11.7 percent. The new pack of Maine sardines early in June was substantially greater than the previous season and prices, which had been abnormally high because of short supplies, returned to more normal levels. Compared with June 1961, prices this June were up 1.8 percent for canned pink salmon, 10.4 percent for canned tuna, 16.7 percent for California sardines, and 29.3 percent for Maine sardines.

BY HAND

This term means the gathering or collecting of fish or shellfish without the aid of any tools or equipment. This includes skin diving with a snorkel tube, "treading" of clams (feeling for the clams with the feet and lifting them from the bottom with one foot), and "signing" (locating clams by their syphon holes and digging them out by hand).



Gathering by hand.

Note: Excerpt from Circular 109, Commercial Fishing Gear of the United States, for sale from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., single copy, 40 cents.

International

FOOD AND AGRICULTURE ORGANIZATION

PROGRAM TO PROMOTE USE OF FISH PROTEIN CONCENTRATES FOR HUMAN CONSUMPTION:

A program to promote the use of fish protein concentrate or fish flour for human consumption has been announced by the Food and Agriculture Organization Fisheries Division.

Fish protein concentrates of appropriate quality would be extremely effective in meeting serious protein deficiencies in many areas of the world and...raw materials to produce such concentrates are available in abundance in certain areas.

FAO, in consultation with other U. S. specialized agencies and with various experts in this field, has drawn up minimum specifications for fish protein concentrates which would be suitable for human consumption and has also been assembling the latest available information on suitable types of equipment and processes.

However, it is recognized that the information concerning equipment and processes and concerning the results of various experiments in different parts of the world is still not yet complete.

FAO's Fisheries Division has prepared a paper, entitled "Note on a Proposal to Manufacture Fish Protein Concentrates in Peru." This note deals with minimum specifications for fish protein concentrates suitable for human consumption and also gives the latest available information on equipment and processes. The Division is also urgently seeking supplementary information on equipment and processes for manufacturing fish protein concentrates and on the results of experiments with this product.

Excerpts from the FAO paper follow:

1. Background: The use of fish protein concentrates for human consumption was discussed by the FAO International Meeting on Fish Meal, Rome, March 1961; by the FAO/UNICEF/WHO Protein Advisory Group, June 1961; by the FAO International Conference on Fish in Nutrition, Washington, September 1961; and in particular by a Panel of Experts convened by FAO in Washington in September 1961. This Panel made certain recommendations concerning the specifications which should be followed in the manufacture of such products and concerning areas in which campaigns to promote the consumption of such products would be likely to be most effective. Among the latter, priority was given to a campaign in Peru to be associated with the very large-scale production of fish meal which had developed in that country. Recommendations of the Panel were subsequently discussed in FAO and were also referred to the Second Annual Conference of the International Association of Fish Meal Manufacturers, Lisbon, October 1961. A tentative plan of operation for a project in Peru was drafted and thereafter discussed in detail with representatives of the Government, the Fish Meal Industry, and other interested agencies in Peru, by FAO staff members during a visit to Peru in December 1961. Discussions revealed a strong interest on the part of the Government of Peru in promoting such a campaign and on the part of the fish meal manufacturers in Peru in acquiring and operating the necessary equipment for the manufacture of fish protein concentrates in sufficient quantity to supply such a campaign and, later, the commercial demand for such products in Peru.

2. Fish Protein Concentrates--Characteristics and Specifications: In considering the manufacture of fish protein concentrates in powdered form, it is essential to recognize the typical characteristics of these products and what bearing these have on the equipment and processes to be used. For the purpose of these and similar projects, where the production of fish protein concentrates, as described in the tentative specifications, is envisaged as supplementary to the manufacture of fish meal, three types of product have been specified.

The specifications give the minimum requirements for each type. Type A is completely, or almost completely, deodorized and defatted; Type B is partly deodorized and defatted; and Type C is non-deodorized and non-defatted.

3. Existing Equipment and Processes for the Manufacture of Fish Protein Concentrates: The following is a summary of what is known to FAO concerning available equipment and processes used for the manufacture of fish protein concentrates in different countries. In this connection, it must be emphasized that the manufacture of Types A and B products from a

International (Contd.):

Type C product has so far been restricted to batch production on a small scale and that continuous type extraction plants have not yet been tested on fish.

(a) Types A and B Products

Two groups of processes can be distinguished:

(i) Production of Types A and B in one stage directly from raw fish by azeotropic dehydration and lipid extraction with partial or complete deodorization. Fish protein concentrates of Type C cannot be manufactured by this method.

(ii) Production of fish protein concentrates in two stages, the first of which consists in producing a concentrate of Type C. The second stage is a solvent extraction of Type C leading to a concentrate of Types A and B.

The solvents used in the various processes for making fish protein concentrate of Types A and B are ethanol, isopropanol, hexane, ethylacetate, acetone, and ethylene dichloride.

The solvents used may affect the wholesomeness of the product. They must be eliminated from the final product because of undesirable effects on taste and flavor. No toxic residues must be allowed to remain in the final product.

Good experiences are recorded with ethanol and isopropanol.

In most of the equipment to be used for manufacturing concentrates of Types A and B, various solvents can be utilized but trials have to be carried out before switching from one solvent to another.

The apparent merits and demerits of the various processes in relation to requirements in Peru are discussed below. The conclusion is that the information available is sufficient for the Peruvian Government and industry to come to a decision about the manufacture of Types A and B in Peru now, but that the selection of a specific process might be made dependent on further investigations and trials. If the decision is positive, these investigations and trials could take place concurrently with the first phase of the campaign for the introduction of fish protein concentrates into the diet of protein-deficient people in Peru, namely the development of suitable vechicles including testing for palatability. Meanwhile, FAO is now conducting widespread enquiries in order to supplement the analytical and operational information available at present.

(b) Type C Products

Subject to certain precautions and control with regard to the quality of the raw material and standards of hygiene during processing, these products can be manufactured in conventional fish meal equipment. The methods can again be divided into two groups:

(i) Those where the raw material is dehydrated by direct heat (flame driers);

(ii) Those where the raw material is dehydrated by indirect heat (indirect steam driers).

It is fully realized that satisfactory products might be produced by all the methods involved. In order to decide what type of process should be selected for Peru, it appears that the following points ought to be taken into account:

(i) The process should be easily controllable and not need highly skilled operation.

(ii) The equipment should be easily serviced and cleaned in order to meet the requirements necessary for food processing equipment.

4. Investigations Concerning the Manufacture of Fish Protein Concentrates: There is widespread interest on the part of the fishery industry, food technologists, and nutritionists in the development of equipment and processes for the manufacture of fish protein concentrates suitable for human consumption, and certain investigations now proceeding offer hope of success at a fairly early date.

5. Considerations Affecting the Proposed Project in Peru: During discussions between FAO and the fish meal manufacturers in Peru, the latter indicated their interest in an installation capable of producing 1,500 tons annually of fish protein concentrates of Types A, B, and C, without restriction below this limit of the capacity to produce any one of these types. It will be evident that in the circumstances described above, the manufacturers are faced with a number of alternatives which must be evaluated in terms of the commercial risks involved and the prospects for a profitable return on investments. These alternatives are described below, together with FAO's comments on the apparent advantages and disadvantages from the standpoint of technical, economic, and organizational considerations:

(a) It is recognized that an annual production of 1,500 tons, such as is visualized by the fish meal manufacturers in Peru, is considerably in excess of the requirements of the projected campaign and that the surplus will be marketed together with fish meal for animal feeding. In view of this, and also since some Type C product will probably be required in any case (for the purpose of the campaign), it is assumed that the project in Peru will be based on the manufacture of a Type C product. The manufacture of Types A and B products will be based on processes involving the manufacture of a Type C product as a first stage (production in two stages).

(b) With regard to the manufacture of a Type C product, it has been mentioned above that conventional fish meal equipment can be used for this purpose. It is a matter for the manufacturers to decide whether to install a new plant or to make available an existing plant for this purpose. In this connection, it is strongly recommended that whatever equipment is used, whether new or existing, the installation should be used exclusively for the manufacture of a Type C product and should be operated quite separately from other installations manufacturing products below the standards required for human consumption, with due regard for the control of raw material and standards of hygiene as mentioned above. The manufacturers of the fish protein concentrate should be carried out in a closed building.

International (Contd.):

(c) With regard to the manufacture of fish protein concentrates of Types A and B, continuous production processes have been used so far only for products other than fish, and on a scale much larger than that envisaged in Peru.

(d) For the manufacture of Types A and B products, therefore, the manufacturers could adopt one of the following alternatives:

(i) A rotary drum batch process using a plant to be purchased and installed by the fish meal manufacturers.

Comment: The advantage would be that a Type B and perhaps A product could quickly be produced in sufficient quantities for the promotion campaign. During this period, it would be hoped that the results of various experiments and pilot operations would be available, on the basis of which the manufacturers could then be further advised. If, at a later stage, the manufacturers decided to replace the rotary drum process by a continuous process, this might be done without changing the solvent recovery unit which accounts for the greater part of the cost of the equipment.

(ii) A pilot plant for continuous extraction set up and operated by interested manufacturers of equipment.

Comment: Manufacturers of equipment have already indicated interest in making pilot plants available in Peru or to make trials with anchoveta in their own countries. Production would be on a small scale, but would be adequate for gaining experience with the process and for supplying material for the early stages of the promotion campaign.

(iii) An existing continuous extraction plant now being used in Peru for products other than fish.

Comment: The capacity would undoubtedly be much greater than that required for the manufacture of fish protein concentrates in Peru. The arrangement would depend on the willingness of a firm in Peru already operating a continuous extraction plant to make the plant available and to operate it under appropriate conditions, including the use of specified solvents and the exclusive use of the plant at given periods for the manufacture of fish protein concentrates.

(iv) A full-scale continuous extraction plant purchased and installed to the specifications of the fish meal manufacturers.

Comment: FAO could not recommend the outright purchase of any particular full-scale continuous extraction plant and considers further trials and investigations essential. However, interested suppliers of equipment may be willing to make such a plant available on attractive terms. This would be subject to negotiation once it has been decided to proceed with the project.

(e) In general, for a plant in which fish protein concentrates of Types A, B, and C should be manufactured, the following characteristics should be given:

(i) Operate only with fresh, wet fish of good quality.

(ii) Be equipped in a fully sanitary manner, so as to qualify as a food processing installation.

(iii) Store the fish protein concentrates in such a way that no spontaneous heating can occur (storage of the concentrates in bags of suitable material).

6. Conclusions: It is necessary first to decide, in principle, whether in the light of the information now available, the campaign outlined in the draft plan of operation should be undertaken. If this decision is positive, the fish meal manufacturers could go ahead with setting up a new, or using an available, plant for the production of fish protein concentrate of Type C. The manufacturers could either choose one of the alternatives listed under 5 (d) above or, if on closer examination there is not one which appears sufficiently attractive at once, defer for the moment the final decision concerning the process and equipment to be used in the manufacture of fish protein concentrates of Types A and B--see 3. (a). Supplies of these products could be obtained from other countries for the purpose of the early stages of the promotion campaign. This procedure would probably be effective in determining the requirements of the market.

As part of the project, FAO would make available the services of a suitably qualified food processing technologist, who would be ready to advise the industry on the choice of methods and equipment. He will have at his disposal a good deal of additional information on existing processes and equipment which FAO and other agencies are now assembling. Moreover, a number of pilot operations undertaken both by suppliers of equipment and by research institutes are at present in progress and well advanced. The FAO expert will keep in close touch with these pilot operations. By the time preparations for the acceptability trials are complete, vehicles for the introduction of fish protein concentrates into the diet of protein-deficient people have been developed and palatability trials have been carried out, it is likely that considerably more will be known about the various processes for the manufacture of Types A and B, so that, if the decision of the choice of equipment is deferred, it could then probably be taken with a good deal of confidence.

* * * * *

WORLD MEETING ON TUNA BIOLOGY:

Some 250 scientists from 25 nations were expected to gather at La Jolla, Calif., July 2-14, 1962, for a World Scientific Meeting on the Biology of Tunas and Related Species. The meeting was sponsored by the Food and Agriculture Organization (FAO). The United States Government was official host.

Its purpose was to launch first steps toward establishing the world-wide cooperation

International (Contd.):

necessary to clear up some of the unknown factors surrounding the fish, its behavior, migratory habits, how much is caught and how much could be caught, and the differences between the various species of tuna.

Though man has fished tuna for thousands of years, a great many questions remain unanswered about the fish. FAO officials say that fish biologists around the world agree that these questions must be answered if further progress is to be made in tuna fishing.

While this meeting was concerned primarily with the biology of tunas, its results should be of great interest to all tuna-fishing nations.

World tuna landings have more than tripled since the end of the Second World War, FAO's most recent fisheries yearbook shows. Just over 500 million pounds were landed in 1948. By 1961 landings had climbed to about 2,000 million pounds.

Japan and the United States, in that order, dominate commercial tuna fishing, accounting between them for more than 90 percent of the world catch. Other important tuna fishing nations are Peru, France, and Spain.

Interest in new developments in tuna fishing is not limited to just a handful of nations, however. Almost every maritime country bordering tropical and temperate waters conducts at least some tuna fishing and in many the industry is rapidly growing.

FAO fishing experts expected the La Jolla meeting would be an important first step toward answering some of the still-unanswered questions about the tuna, in stimulating further research, and in working out international cooperation for the most intelligent exploitation and conservation of the world's tuna resources.

* * * * *

INTERIOR OFFICIAL HEADED UNITED STATES DELEGATION:

The United States delegation to the World Scientific Meeting on the Biology of Tunas and Related Species, sponsored by the Food and Agriculture Organization of the United Nations, was headed by Donald L. McKernan, Director of the Fish and Wildlife Service's Bureau of Commercial Fisheries. The United States was host for the conference, July 2 to 14, at the Art Center in La Jolla, Calif.

Following success of the World Scientific Meeting on the Biology of Sardines and Related Species in September 1959, in Rome, Italy, the value of holding expert meetings on various species of fishes was recognized. The convening of this meeting on the biology of the tuna and related species was approved at the Eleventh Session of the FAO Conference in Rome in November 1961.

The World Tuna Meeting brought together about 250 scientists from 15 to 20 governments and private institutions engaged in studying the identity, distribution, behavior, and potential yields of stocks of tunas.

The objectives of the La Jolla meeting were to appraise known scientific factors, gaps in knowledge, theories and concepts, and methods and equipment, and to consider and recommend future lines of endeavor, national and international, in the study of the biology of world tuna resources.

The tuna--yellowfin, skipjack, albacore, bluefin, and little tuna--and the tunalike fish, bonito and yellowtail, roam the oceans; they know no geographical boundaries. As late as the turn of this century, tuna had little or no commercial value. They were not considered edible, and fishermen who found them on their lines usually threw them back into the sea.

Then, in 1903, the Pacific sardine failed to appear in the San Pedro, Calif., area. One packer, in an effort to keep his cannery operating, canned 700 cases of tuna and distributed them to wholesalers. Repeat orders were received, and the fishery grew rapidly. The tuna are now one of the leading fishery resources of the United States, as well as of many other nations whose tuna fisheries continue to advance. FAO statistics for 1960 show a world catch of about two million tons of tuna, bonito, mackerel, and their relatives. Almost half this catch was true tuna.

Canned tuna now is a familiar item in almost every American home and on every grocer's shelf. It is economical, nutritionally excellent because of its animal protein of superior quality along with its valuable vitamins and minerals, easy to prepare, and universal in taste appeal. Because of its versatility, it is probably the most frequently served canned fish in the United States, appearing in an infinite variety of tuna salads, tuna chowders, tuna casseroles, tuna pot pies, tuna and egg scramble, tuna a la king, tuna sandwiches, and in other dishes with an international flavor like tuna foo yung, tuna a la Stroganoff, and tuna pizza.

The Department of the Interior reported that the recent and rapid development of tuna fisheries throughout the world has emphasized the need for tuna research workers to meet and discuss the biological and oceanographic research programs now being conducted, and to consider the coordination of their work. New methods of fishing and high prices are increasing the danger of overfishing, particularly of the yellowfin stocks. Serious consideration must be given to such matters.

The World Tuna Meeting was conducted in the three official languages of FAO--English, French, and Spanish. The Japanese provided their own interpreters with some help from the United States.

McKernan's alternates to the meeting were Dr. O. E. Sette, Director of the Bureau of Commercial Fisheries Biological Laboratory at Stanford, Calif., and Vernon E. Brock, Director of the Bureau's Biological Laboratory, Washington, D. C. Other members of the United States delegation included Dr. Roger Revelle, Science Advisor to the Secretary of the Interior; Stuart Blow, Office of Special Assistant for Fisheries and Wildlife, Department of State; and several other officials of the Bureau of Commercial Fisheries, as governmental advisers. The nongovernmental advisers included Dr. F. N. Spiess, Acting Director of the Scripps Institution of Oceanography, La Jolla, Calif., Dr. Richard Van Cleve, Dean, College of Fisheries, University of Washington, Seattle; Sigurd J. Westrheim of the Oregon Fish Commission; and Phil M. Roedel of the California Department of Fish and Game.

Preparatory arrangements for this important world meeting were handled by a subcommittee appointed by

International (Contd.):

the United States FAO Interagency Committee. Dr. J. L. McHugh, Chief of the Division of Biological Research, Bureau of Commercial Fisheries, was chairman.

* * * * *

INTERIOR UNDER SECRETARY CARR DELIVERED KEYNOTE ADDRESS:

Under Secretary James K. Carr of the U. S. Department of the Interior delivered the keynote address at the opening session of the 13-day United Nations' Food and Agriculture Organization World Scientific Meeting on the Biology of Tunas and Related Species, July 2, 1962, at the Art Center in La Jolla, Calif.

Other speakers at the opening session of the meeting were William E. Warne, Director, Department of Water Resources, State of California, and Dr. D. B. Finn, Director, Fisheries Division, FAO, Rome, Italy. Mayor Charles Dail of San Diego, Calif., welcomed the conferees and distinguished guests.

The World Tuna Meeting is a major event in the history of scientific fishery research. About 200 to 250 scientists from 15 to 20 governments and private institutions engaged in studying tuna participated in the conference. The biological and oceanographic research programs now being conducted, often independently, by the many nations with important tuna fisheries were discussed, and consideration was given to coordination of such work.

EUROPEAN ECONOMIC COMMUNITY

FISHERIES POLICY CONFERENCE PROPOSED FOR EUROPE:

Immediate talks on a common fisheries policy between European Free Trade Association (EFTA) members Norway, Denmark, and Great Britain, and the European Economic Community (EEC) were proposed by the vice-president of the EEC Commission. These conferences would be independent of the current negotiations of the three countries for EEC membership.

He declared that, in view of the fact that Great Britain, Norway, and Denmark together produce substantially more fish than the present Common Market countries, their entry into the EEC would be of greater significance to the fisheries industry than the drafting of a common policy within the Six--a matter which the EEC has not yet undertaken. It would be impossible, he said, for the EEC countries to formulate a meaningful fisheries policy without prior consultation with the three EFTA countries, which fish the same North Sea waters.

Speaking earlier on the same subject, the Danish Minister for Fisheries said that he looked forward to talks with the EEC on fisheries problems. The interests of Denmark, Norway, and Great Britain, he said, were so dissimilar to those of the Common Market countries that it would be necessary to review the whole complex situation. He said that it would be of genuine value for Denmark if liberalization of the trade in fish and fish products could be achieved in Western Europe.

The fish catch for all the EFTA countries including Finland, was 3.85 million metric tons in 1959, of which Denmark, Norway, and the United Kingdom accounted for 3.36 million. That of the EEC members was 1.95 million metric tons. Among individual countries, Norway led with 1.61 million, followed by the United Kingdom, with 989,000; West Germany, 765,000; Denmark, 761,000; and France, 511,000. (EFTA Reporter, May 29, 1962.)

EUROPEAN FREE TRADE ASSOCIATION

ANOTHER TEN PERCENT TARIFF CUT ANNOUNCED:

The European Free Trade Association (EFTA) Ministerial Council met in Copenhagen June 21-22, 1962, and decided to slash tariffs among its members a further 10 percent. This cut will bring intra-EFTA tariffs down to half what they were when the organization was launched two years ago. The action marked a further vigorous acceleration in tariff-cutting; according to the Stockholm Convention, EFTA's charter, the half-way mark was to be reached January 1, 1965[1/].

The new 10 percent cut will be implemented by Denmark, Portugal, Sweden, Switzerland, and the United Kingdom on October 31, 1962. Austria will make the reduction not later than December 31, 1962, and Norway not later than April 30, 1963.

The first meeting of the Finland-EFTA Council took place on June 22. The Finnish

1/Under the previous accelerated program of tariff cuts. Most EFTA countries had reduced tariffs among themselves by 40 percent on March 1 (and all were to do so by September 1)--a level which, according to the Stockholm Convention, was to have been reached not later than July 1, 1963.

International (Contd.):

representative stated that he would bring the question of the further 10 percent tariff cut before his Government with a view to its participation in the decision.

The EFTA Secretary General gave two reasons for the accelerated tariff cut.

"First, to do so is a good thing in itself. It is sensible to proceed toward the abolition of tariffs within EFTA, thus creating our own common market as rapidly as possible. The present economic climate is highly advantageous for such a move.

"The second reason is that, from the very beginning, we have had as a major objective keeping in step with the European Economic Community (EEC). We devised our own time table in the Stockholm Convention as nearly as we could to follow the time-table of the Treaty of Rome and we have, whenever the EEC has modified its program, made a similar modification in ours."

Note: See Commercial Fisheries Review, April 1962 p. 41.

FISH OILS

WORLD EXPORTS ESTABLISHED RECORD IN 1961:

World gross exports of fish oils (including fish-liver oils) reached a record 344,000 short tons in 1961, reflecting the phenomenal expansion of fish oil shipments from Peru. World exports increased by 27,400 tons from the previous high of 1960 and were almost two-thirds higher than the 1955-59 average.

Peru, the United States, Iceland, the South Africa Republic, and Portugal are the most important world suppliers of fish oil, accounting for over 90 percent of the world's net exports and over 60 percent of the world's gross exports of fish oil in 1961. Although several European countries export sizable quantities of fish oil, the area as a whole is a net importer, and is the world's major market for fish oil. The Netherlands, Denmark, and West Germany import large quantities of fish oil for further processing and export largely to other European countries.

Peru has become the world's leading exporter of fish oil. Total exports reached a record 112,772 tons in 1961, almost three times 1960 exports. Apart from Portugal, exports from the other major exporting countries declined slightly in 1961. Norway's reported exports of fish oil were up slightly in 1961, but are probably much larger than indicated owing to the exclusion of hardened fish oils which are not classified separately in trade statistics.

World exports in 1962 will probably continue upward but possibly at a lower rate than in the preceding 3 years owing to the fear of overexpansion in production and weak prices. Exports from the United States and Iceland probably will increase on account of the fairly large carry-over stocks held at the end of 1961.

World Gross Exports of Fish Oil (Including Fish-Liver Oils) 1/, Average 1955-59, Annual 1958-61

Continent and Country	2/ 1961	1960	1959	1958	Average 1955-59
	(1,000 Short Tons)				
North America:					
Canada	4.1	14.8	14.4	5.8	8.3
Mexico	0.8	3/	0.7	0.7	0.7
United States	61.2	71.8	72.2	47.0	64.1
Total	66.1	86.6	87.3	53.5	73.1
South America:					
Argentina	0.2	0.7	0.3	0.5	0.3
Chile	3.2	6.6	0.1	-	4/0.1
Peru	112.8	38.6	18.9	1.8	5.5
Total	116.2	45.9	19.3	2.3	5.9
Europe:					
Denmark	10.5	7.4	16.1	12.6	12.5
France	2.7	2.4	1.6	0.4	1.1
Germany, West	25.3	26.2	31.6	17.9	17.9
Iceland	35.0	53.7	18.9	27.4	21.1
Netherlands 5/	5.4	7.8	16.0	13.0	10.4
Norway	24.0	18.4	21.8	19.8	21.3
Portugal	7.4	5.2	6.3	5.8	5.5
Sweden	3.4	2.5	3.0	2.0	2.5
United Kingdom	3.2	3.7	3.7	3.6	3.8
Other (incl. U.S.S.R.) 6/	2.4	1.8	2.4	1.5	1.2
Total	119.3	129.1	121.4	104.0	97.3
Africa:					
Angola	3.1	7.3	5.6	9.4	8.1
Morocco	5.2	5.7	4.3	4.5	2.7
South Africa Republic	30.5	36.5	26.0	18.1	14.9
Total	38.8	49.5	35.9	32.0	25.7
Asia and Oceania:					
Japan	2.7	3.8	3.6	6.6	5.8
Other 6/	0.9	1.0	1.7	1.2	1.7
Total	3.6	4.8	5.3	7.8	7.5
World Total	344.0	315.9	269.2	199.6	209.5

1/ Hardened fish oils have been included wherever separately classified in export statistics.
2/ Preliminary.
3/ Under 50 tons.
4/ 1959 only.
5/ May include some whale oil prior to 1960.
6/ Includes estimates for minor exporting countries.
Source: Foreign Crops and Markets, June 28, 1962, U. S. Department of Agriculture.

INTERNATIONAL NORTHWEST PACIFIC FISHERIES COMMISSION

SOVIET-JAPANESE SALMON CATCHES, 1956-1961:

While Japanese salmon catches in the Treaty area have been controlled through catch quotas negotiated between Japan and U. S. S. R., Japanese fishing pressure in the non-Treaty area has been maintained at a high level. But there has been a steady de-

North Pacific Salmon Catches by Japan and U.S.S.R., 1956-1961

Year	Japan			U.S.S.R.	Grand Total
	Treaty Area	Non-Treaty Area 1/	Total		
	(1,000 Metric Tons)				
1961	64.9	80.7	145.6	79.7	225.3
1960	66.6	80.2	146.8	69.5	216.3
1959	85.1	94.0	179.1	94.1	273.2
1958	110.1	86.4	196.5	73.0	269.5
1957	121.1	60.4	181.5	150.0	331.5
1956	100.9	49.4	150.3	165.7	316.0

1/ Area south of 45o N. latitude off Eastern Hokkaido.

International (Contd.):

cline in both Japanese and Soviet salmon catches during the past few years. (Suisan Keizai Shimbun, February 11, 1962.)

INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION

COMMITTEE ON BIOLOGY AND RESEARCH MEETS IN TOKYO:

The working party on offshore distribution of salmon and the working party on oceanography of the subarctic waters of the North Pacific of the Committee on Biology and Research of the International North Pacific Fisheries Commission, met in Tokyo, Japan, May 28-June 30, 1962. A U. S. Bureau of Commercial Fisheries scientist was a member of each working party.

At its 1959 and 1960 meetings, the Commission adopted recommendations of its Committee on Biology and Research with the objective of joint reporting of appropriate phases of the salmon research program and the eventual joint reporting of the results of the research program as a whole. In 1961, the Committee developed several recommendations as to the preparation of a comprehensive report on the origin, distribution, abundance, and intermingling of the continental stocks of Pacific salmon on the high seas. The purpose of the meetings of the two working parties, which met concurrently, was to expedite the final preparation of Chapters V and VI of that report, dealing respectively with the two subjects.

(NORTH EUROPEAN) INTERNATIONAL FISHERIES CONVENTION OF 1946

TENTH MEETING OF THE PERMANENT COMMISSION:

The Tenth Meeting of the Permanent Commission of the International Fisheries Convention of 1946 was held in Hamburg, West Germany, May 8-11, 1962. Delegations attended from all 14 of the Member Governments (Belgium, Denmark, the Federal Republic of Germany, France, Iceland, Ireland, Netherlands, Norway, Poland, Portugal, Spain, Sweden, U.S.S.R., and United Kingdom). Observers represented the United States, the International Council for the Exploration of the Sea, the International Commission for the Northwest Atlantic Fisheries, and the Food and Agriculture Organization.

The Commission agreed that for an experimental period of 3 years from June 1, 1963, the use of nets with meshes between 50 mm. (almost 2 inches) and the Convention minima should be prohibited in and around the North Sea. The Commission further agreed to increase the minimum size of whiting from 20 to 23 cm. (7.9-9.1 inches) from the same date and to extend to June 1, 1966, the rule permitting the landing from mixed fisheries of a proportion of undersize protected fish for industrial purposes. Permission for the use of small-mesh nets in the whiting fishery in the Skagerak and Kattegat was extended until May 31, 1964. The Commission also resolved to request member governments to take all practicable steps to ensure that small-mesh nets are used solely for unprotected fish.

The Commission expressed their concern at the state of the fish stocks in the northern part of the Convention area, and resolved to request member governments to facilitate the introduction of further conservation measures as soon as possible.

The Commission agreed to extend the present permission for the use of top-side chafers until June 1, 1963. They also expressed desire to prevent the use of those types of chafers which reduce the selectivity of nets, and their intention to review the position at their 1963 meeting.

The Commission agreed to increase the minimum sizes of cod and haddock to 34 cm. (13.4 inches) and 31 cm. (12.2 inches), respectively, in all waters in which at any time a minimum size of mesh of nets of 120 mm. (4.7 inches) is specified.

The Commission agreed to extend until June 1, 1964, the operation of the minimum size of mesh of nets of 75 mm. (almost 3 inches) in the southern part of the Convention area.

The Commission expressed its appreciation of the valuable contributions that were being made by the International Council for the Exploration of the Sea to their work. (News release dated May 12, 1962, from the Office of the Permanent Commission, London.)

NORTHWEST ATLANTIC FISHERIES COMMISSION

COMMISSION MEETS IN MOSCOW:

The 12th Annual Meeting of the Commission for the Northwest Atlantic Fisheries was held in Moscow, U.S.S.R., June 4-9, 1962. The meeting was attended by a delegation of

International (Contd.):

United States Commissioners, and Government and industry advisers.

The Commission is concerned with the investigation, protection, and conservation of the fisheries of the Northwest Atlantic Ocean, in order to make possible the maintenance of a maximum sustained catch from those fisheries. The United States Delegation was particularly concerned at this meeting with (a) consideration of member governments' annual returns showing inspections carried out, (b) reconsideration of the minimum mesh size regulations for various areas in the Northwest Atlantic, and (c) the establishment of an international inspection system for North Atlantic trawlers.

Actions and discussions by the Commission of interest to the New England fishing industry were:

1. The Soviets requested and were admitted to Panels 4 and 5.

2. Sea herring were recognized as a species to be considered in Subarea 5.

3. An increase in the ring size for scallop gear was discussed. It was pointed out that delaying the time of harvest by one year would increase the short-term yield by 10-20 percent. However, because of the fishing mechanics of the gear, it has been determined that minor increases in ring size accomplishes little and experiments have not yet been conducted to determine the ring size necessary to achieve an increase in the yield of meats. The scientists were instructed to continue the studies.

4. The possibilities of establishing a minimum trawl mesh size for the bottom fisheries on species other than haddock and cod were discussed. It was felt that this would be desirable, but there was insufficient data concerning the effect of various mesh sizes on the different species and fisheries. The scientists were directed to continue studies on this matter.

5. The Commission made no recommendations for changes in fishing regulations in any of the ICNAF areas.

6. The matter of international or cooperative enforcement of ICNAF regulations was considered. It was recognized that the mechanics of such an operation would be complicated. It was felt that if such an enforcement program were to be recommended by the Commission, it would best be done by means of the enforcement facilities of the member countries. It was decided to continue the study of this matter along these lines and bring it up again for discussion at the next annual meeting of the Commission, which will be held in Halifax, Nova Scotia.

A group from the United States delegation attending the Commission meeting met informally with members of the U.S.S.R. delegation to discuss reported operating difficulties experienced by United States fishing vessels in areas where vessels of both nation fished in the North Atlantic. Both groups urged that all fishermen of all nations review and study the Rules of the Sea as applied to fishing vessels, and to put them into practice.

To further promote cooperation between the fishing vessels of both nations, starting in the spring of 1963 fishing vessels of the U.S.S.R. will place a radar reflector buoy at the tail or far end of the drift gill nets which are used for catching herring. It was agreed at the meeting, that observance of the Rules of the Sea, and a common respect for a neighbor fisherman would help eliminate any future problems of that type.

It was agreed that a joint publicity campaign be started to further instruct the fishermen of both nations upon the Rules of the Sea and good fishing practices.

INTERNATIONAL WHALING COMMISSION

AD HOC SCIENTIFIC COMMITTEE MEETING:

The Ad Hoc Scientific Committee of the International Whaling Commission met in London June 25-29, 1962. The Committee met one week before the Fourteenth Meeting of the International Whaling Commission to prepare a report on the conditions of the Antarctic whale stocks in connection with new regulations on limitations of whales to be taken from the Antarctic stocks during the next whaling season. The Committee's action was

International (Contd.):

considered by the Commission which convened at London on July 2, 1962.

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ANNUAL MEETING OF COMMISSION:

The United States delegation at the Commission's Fourteenth Annual Meeting consisted of J. Laurence McHugh, United States Deputy Commissioner, International Whaling Commission, and Dale W. Rice of the U. S. Bureau of Commercial Fisheries Marine Mammal Laboratory, Seattle, Wash.

A major agenda item was the setting of an over-all quota (based on blue-whale units) for the Antarctic whale catch for a four-year period ending with the 1965/66 season.

In 1960 the Commission established a three-man committee composed of one each from the United States, Canada, and the Food and Agriculture Organization (FAO) to study the condition of the Antarctic whale resources and to recommend for the Commission's consideration the number of whales that could be safely taken without injury to the resource. The percentage shares of the total quota, which the Commission will set, are as follows: Japan, 33; Norway, 32; U.S.S.R., 20; United Kingdom, 9; and the Netherlands, 6 percent.

According to early press reports, Britain and the Netherlands were expected to table a proposal calling for a reduced catch quota of less than 15,000 blue-whale units for each year of the four-year period. Two reasons for the reduction are cited: (1) to conserve the resource; and (2) to stabilize the market for baleen whale oil.

Baleen whale oil is used primarily for making margarine. Baleen prices have dropped from an average price of ($194 per long ton in 1960, to $167 in 1961 and $125 in 1962 because fish oils, which are cheaper to produce, are now being used in the manufacture of margarine. (United States Embassy, Tokyo, June 29, 1962.)

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT

FISHERIES COMMITTEE MEETING:

The fourth session of the Fisheries Committee of the Organization for Economic Cooperation and Development (OECD) was held in Paris, France, July 9-10, 1962. H. E. Crowther, Assistant Director, U. S. Bureau of Commercial Fisheries, attended the meeting. He also traveled to Brussels, Belgium, to contact officials of the European Economic Community (Common Market). A. W. Anderson, Regional Fisheries Attache for Europe, attended the OECD fisheries meeting in his capacity as permanent United States representative on the Fisheries Committee.

The agenda for the Fisheries Committee meeting included consideration of the OECD work program for fisheries. The program for 1962 is largely a continuation of several unfinished projects started under the former Organization for European Economic Cooperation (OEEC). The new program sets the direction for activities and work projects in the OECD fisheries sector during 1963 and in subsequent years.

OECD actions take on special significance for the United States fishing industry when it is considered that members of this organization account for one-third of the world's total fish production, about 80 percent of world imports of fishery products, and 56 percent of world exports. Among the 20 member countries are the United States, Canada, the six members of the European Common Market, the United Kingdom, Denmark, and Norway.

In Brussels, Crowther conferred with representatives of the European Economic Community principally on matters concerning a common fisheries policy for member countries.

INTERNATIONAL INSTITUTE OF REFRIGERATION

INTERNATIONAL CONGRESS OF REFRIGERATION TO BE HELD IN MUNICH:

The eleventh International Congress of Refrigeration will be held at Munich, West Germany, August 27-September 4, 1963. The Congress is under the auspices of The International Institute of Refrigeration.

The Congress will convene with a General Meeting, followed by three Plenary Sessions covering a number of main subjects, among which are included: (1) Freeze-Drying; (2) Time-Temperature Tolerance, and (3) Energy for Refrigeration in Coming Years.

The Technical Commissions of the Institute selected various special subjects for dis-

International (Contd.):

cussion at the Congress, which include the following:

1. Chemical and physical methods for measuring the quality of foods.

2. Biochemical changes in fresh and frozen meat, poultry and fish; their chilling before freezing.

3. Chilling and cooling down of foods, and heat transfer.

4. Extraction of fresh water from sea or brackish water.

5. Freeze-drying, theory, industrial developments, use in foods, and future prospects.

6. Refrigeration of fishing boats.

7. Application of hermetic compressors to marine refrigeration.

The official languages of the Congress are English and French.

OCEANOGRAPHY

TROPICAL ATLANTIC INVESTIGATION:

The first Working Group of the Intergovernmental Oceanographic Commission met in Washington at the National Oceanographic Data Center June 20-22 to draw up plans for an International Cooperative Investigation of the tropical Atlantic which will begin in February 1963. Such an international cooperative project in synoptic oceanography is a bold new venture in the field of oceanography, and its successful completion will require participation of ships and scientists from many nations. In a synoptic survey simultaneous instrument readings are taken from a number of ships to give what one might consider as a photograph of the surface and subsurface conditions of the ocean. Ships from eight nations and scientists from additional nations are expected to participate in the project, which will be the first international cooperative effort initiated under the auspices of the Intergovernmental Oceanographic Commission. The Commission was formed within UNESCO and held its first session in October 1961 in Paris. The United States called this first working group together under a resolution adopted by the Commission authorizing member governments to convene working groups to draw up comprehensive plans for such cooperative oceanographic undertakings.

The Working Group, under the Chairmanship of Dr. Arthur E. Maxwell of the Office of Naval Research, drew up plans for a multiship synoptic oceanographic investigation in the tropical Atlantic from South America to Africa. The fisheries investigation in the Gulf of Guinea under the Commission for Technical Cooperation in Africa will be part of the over-all project. The United States Agency for International Development is planning to finance part of this fisheries investigation.

The United States will contribute seven ships to the investigation, representing the Bureau of Commercial Fisheries, Coast and Geodetic Survey, Woods Hole Oceanographic Institution, Texas A & M, and the Lamont Geological Observatory. Two fisheries research vessels and a large oceanographic vessel from the U.S.S.R. will participate. Other ships will be from Argentina, Brazil, France, Ivory Coast, Nigeria, and the (former French) Congo.

Other representatives or observers present at the meeting were from Canada, Chile, China, Germany, Italy, Korea, Morocco, Sierre Leone, Spain, Uruguay, and the Food and Agriculture Organization of the U. N.

The Working Group recommended that each participating member country name a representative to a Coordination Group, which will nominate an International Coordinator of the project to the next Commission meeting in September.

Angola

JAPANESE COMPANY PLANS TO ESTABLISH FISHING BASE:

A large Japanese fishing company is planning to establish a joint fishing base at Luanda, Angola, with an Angolan company. Plans call for freezing and processing bottomfish at the base, as well as operating a fish meal plant. To make final arrangements for this joint venture, the president of the Japanese firm departed Japan for Luanda on June 17.

The Japanese firm involved operated the fish meal factoryship Renshin Maru (14,094

Angola (Contd.):

gross tons) in Angolan waters for the first time in the fall of 1961. The company had pioneered fish meal operations in the Bering Sea but now hopes to rely less on its Bering Sea operations for fish meal production, since they are becoming less profitable due to the increase in fish meal factoryships and bottomfish fleets operating in that area.

The same Japanese firm is also studying possibilities of entering into agreements with a Danish firm and a United States firm, whereby the three firms would jointly engage in the production and marketing of freeze-dried products. According to present plans, the Danish company would furnish the machines, the Japanese firm would provide the fishermen and vessels, and process the catch, and the United States company would market the products. Four units of the Danish firm's vacuum freezing and drying machines would be installed on the Japanese firm's factoryship, which would initially process shrimp and crab meat. The president of the Japanese firm was scheduled to meet with the heads of the Danish and United States firms at Chicago around July 2, for preliminary discussions of this joint venture. (Suisan Tsushin, June 18, 1962.)

Argentina

LANDINGS OF FISH AND SHELLFISH, 1960-61:

Argentina's marine landings of fish and shellfish in 1961 were 9.2 percent below the 1960 landings. The decline was entirely in finfish landings which dropped 8,541 metric tons from the previous year. The 1961 shellfish landings were 741 metric tons more than in 1960.

The principal marine species of fish caught in Argentina was hake--34,426 metric tons in 1961 and 36,095 metric tons in 1960. Mackerel and anchovy were the other principal species. Less of those two species were landed in 1961 than the previous year. Mackerel landings in 1961 dropped 26.9 percent from 1960.

The principal shellfish products landed in 1961 were mussels and shrimp. Mussels were up 17 percent from 1960, and landings of small shrimp were more than double those in 1960.

Table 1 - Argentine Marine Landings of Fish and Shellfish by by Fishery Zones, 1960-61

Zone	1961	1960
	. . . (Metric Tons) . . .	
Fish:		
High seas	37,677.9	39,867.6
Coastal Zones:		
Bahia Blanca	1,189.1	1,183.4
Quequen, Necochea	2,173.9	3,024.6
Mar del Plata	28,223.1	34,057.4
Rawson	215.5	364.0
San Antonio Oeste	109.7	162.6
San Blas, Patagones	407.8	157.6
Tres Arroyos	395.6	154.2
All other zones[1/]	273.0	236.0
Total Fish	70,665.6	79,207.4
Shellfish:		
High seas	315.6	565.9
Coastal Zones:		
Bahia Blanca	237.6	302.1
Quequen, Necochea	4,961.7	4,189.8
Mar del Plata	612.2	229.0
Rawson	320.1	312.1
San Antonio Oeste	157.5	163.3
All other zones[1/]	98.8	190.4
Total Shellfish	6,703.5	5,952.6
Grand Total	77,369.1	85,160.0

1/Includes Comodoro Rivadavia, Gral. Madariaga, Puerto Madariaga, Puerto Madryn, Puerto Deseado, Rio Gallegos, Rio Grande, San Julian, Santa Cruz, etc.

Table 2 - Argentine Marine Landings of Fish and Shellfish by Species, 1960-61

Species	1961	1960
	. . . (Metric Tons) . . .	
Fish:		
Anchovy	10,668.8	11,177.6
Sea bream (besugo)	1,293.0	1,532.2
Mackerel and mackerel-like[1/]	12,361.1	16,900.4
Conger eel (corvina)	1,292.2	1,398.1
Hake (Merluccius hubbsi)	34,425.9	36,094.6
Tuna	1,657.3	1,860.2
Other fish	8,967.3	10,244.3
Total Fish	70,665.6	79,207.4
Shellfish:		
Shrimp, small	690.7	288.6
Shrimp, large ("langostinos")	323.7	359.4
Mussels	5,013.1	4,284.9
Other shellfish	676.0	1,019.7
Total Shellfish	6,703.5	5,952.6
Total Fish and Shellfish	77,369.1	85,160.0

1/Includes caballa, cornalito, and pejerrey.
Source: Boletin Mensual de Estadistica, Febrero de 1962; Republica Argentina, Poder Ejecutivo Nacional, Secretaria de Estado de Hacienda, Direccion Nacional de Estadistica Y Censos.

Table 3 - Argentine Marine and Fresh-Water Fishery Landings, 1960-61

Type of Fishery	1961	1960
	. . . (Metric Tons) . . .	
Marine fish and shellfish	77,369.1	85,160.0
Fresh-Water Fish:		
Food	4,631.0	7,018.9
Industrial use[1/]	4,897.5	7,865.1
Total Fresh-Water Fish	9,528.5	14,884.0
Total Marine and Fresh-Water Fish	86,897.6	100,044.0

1/Consists of "sabalo" (Prochilodus platensis), related to shad.

Argentina's total marine and fresh-water fish landings in 1961 decreased 13.1 percent

Argentina (Contd.):

from 1960. Landings from the Argentine River and lake fisheries both for food and industrial use were down substantially in 1961.

Note: Boletin Mensual de Estadistica, February 1962, Direccion Nacional de Estadistica Y Censos

Australia

TUNA RESEARCH TO BE EXPANDED:

The Division of Fisheries and Oceanography of the Australian CSIRO is concentrating its fisheries research on a limited number of species; principally tuna, spiny lobster or crayfish, Australian salmon (a type of trout), and whales.

In connection with tuna research, it is proposed to have one officer based on Cronulla studying tuna distribution and behavior, another in Victoria investigating reproduction and recruitment, a third in South Australia looking into nutrition, and a fourth, who might be in West Australia, concerned with stock identity. (Australian Fisheries Newsletter, April 1962.)

Canada

FREEZING SYSTEM RESEARCH TO AID IN DEVELOPMENT OF BRITISH COLUMBIA TUNA FISHERY:

The development of an active tuna fishery in British Columbia may be brought closer to reality by work being carried out by the Fisheries Research Board of Canada at its technological station in Vancouver. This work involves the design of freezing equipment which can be used at sea to preserve the catch and enable vessels to range far offshore.

The Research Board technologists are working with the Industrial Development Service of the Federal Department of Fisheries on the project, which in its present state is intended to equip four big seiners with suitable freezing systems which will differ in certain important respects from those now in use on United States tuna vessels. The equipment being designed is felt to have many advantages for local vessels. (Canadian Trade News, February 1962.)

Ceylon

DEPARTMENT OF FISHERIES TO PURCHASE FISHING TRAWLERS:

The Government of Ceylon has approved the expenditure of five million rupees (US$1.1 million) for the purchase of five trawlers, one of which will reportedly be purchased from Yugoslavia. Worldwide tender notices will be issued for the remaining four in the near future. Bids should be around one million rupees or approximately $210,500 per trawler in order to receive consideration. (United States Embassy, Colombo, report dated June 18, 1962.)

Congo Republic

ONLY FISH CANNERY PACKS TUNA AND PILCHARDS:

The only fish-canning factory (packing only tuna and pilchards) in the Republic of the Congo invested new capital in 1961 to increase the

Congo Republic (Contd.):

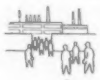
output of its cannery, and also double the capacity of its storage facilities.

The pack was expected to rise by about one-third in 1961 to a monthly average of between 450,000 and 500,000 cans of tuna and pilchards, compared with 375,000 cans in 1960. By the end of the third quarter 1961, the output was running much higher, and was about double the 1960 rate. The Congo tuna and pilchard pack is sold almost exclusively in the Equatorial Customs Union.

A large United States firm with a sizable operation in Ghana indicated serious interest in setting up a fish-processing and fish-freezing plant at Pointe-Noire if suitable investment incentives and other concessions were granted by the Congolese government. Little progress had been achieved on that proposal by the end of 1961 although independent studies indicated that long-term investment opportunities in the fishing and fish-processing industry in the Congo were good.

No statistical data are available on salt- or fresh-water fishing operations in the Congo. Most of the Congo's fishing is done by pirogues (canoe-like boats) operating from beaches and in the rivers. Some fish supplies are also sold in Pointe-Noire by trawlers operating out of other countries. The canning plant also has a small fishing fleet of its own.

Despite the introduction in June 1961 of an Investment Code setting forth certain rights, privileges, and guarantees for investors, there appeared to be little additional interest, internally or externally, in undertaking private investments in new plants, or in the expansion of existing facilities in the fishing industry.



Denmark

SECOND FISH-FREEZING VESSEL FOR U. S. S. R.:

After only 19 days in the working dock, a Copenhagen shipyard launched the M/S Vitus Bering on June 9 for V/O Sudoimport, Moscow. The vessel is the 21st refrigerated type constructed by the shipyard for the U.S.S.R., since World War II and is the second in a series of four fish carriers. Construction time in the dock was cut from 74 to 19 days by assembling the vessel in six sections. Specifications are the same as for the Skryplev, the first in the series, christened May 10, 1962.

The Vitus Bering is equipped with controllable-pitch propeller which can be operated either from the main bridge or from a small bridge placed immediately above the stern ramp. In view of the very stringent requirements with regard to accurate and careful maneuvering while the catch is being taken aboard, the vessel is also equipped with a so-called "activated rudder," consisting of an electrically-driven propeller mounted in a nozzle on the actual rudder. This special rudder arrangement makes it possible to turn the vessel even when she is making no headway.

The Vitus Bering is intended to serve as mothership and refrigerated fish carrier for the Soviet trawler fleet operating in various waters--the North Atlantic, the Arctic Ocean and the Pacific Ocean. She represents the most up-to-date trends in her field.

The catch will consist mainly of cod. The vessel is provided with a large ramp at the stern so that the fish can be taken aboard direct from the sea, and there is a gate with which to close the opening. The fish are taken over from the fishing fleet in two ways: (1) either direct from the vessels over the ship's side as hitherto or (2) as something entirely new, from trawl bags which are left by the trawlers in the water and marked by a buoy. Often these buoys are provided with radar reflectors so that the Vitus Bering will be able to locate them easily by means of radar.

By means of a line-throwing apparatus, a catching device is shot over a floating line attached to the bag. A powerful winch then hauls the catch up the stern ramp and on to the deck where it is emptied into stalls. From here the fish is skidded directly to the ship's two raw product bunkers. For short-time preservation of the fish, two ice generators are installed in connection with the fish stalls which, from sea-water, can produce a total of 10 metric tons of scale ice per day. Irregular fish is sorted out on the deck and poured into the raw product bunker of the fish-meal plant.

From the raw product bunker all transport of the fish is mechanical right up to its being stored in cartons in the holds. On the way the

Denmark (Contd.):

fish is slit open and gutted. This process is still done manually but with automatic feed and removal at the working places. There are special machines for cutting off the fish heads. After washing in continuously-working washing machines, the fish is weighed out automatically in portions of about 10 kilograms (22 pounds), tipped into trays with spring-loaded lids, and taken to the freezing tunnel.

After approximately half an hour's freezing, the lids are removed and the block of fish, which will now retain its shape, is given about four hours' final freezing. Then the fish is loosened from the trays by superficial thawing, it is glazed by immersion in water for a few seconds, and is taken via a reception conveyor on to the packing site. The entire further preparation of the iced fish requires only 4 men, whereas in previous refrigerator vessels delivered to the Soviet Union this work required 8 men.

The entrails and fish heads are taken automatically from the cutting tables to the raw product bunker of the fish meal and fish oil plant, which has a capacity to process 30 tons of raw products per day. In the treatment of cod, the liver is separated from the entrails and is processed into medicinal oil in a special liver-oil plant. Two fresh-water generators with a capacity of 20 tons per day take care of the fresh water supply. (Fisheries Attache, United States Embassy, Copenhagen, June 19 1962.)

* * * * *

FISH FILLETS AND BLOCKS AND FISHERY INDUSTRIAL PRODUCTS EXPORTS, APRIL 1962:

Denmark's exports of fresh and frozen fillets and blocks during the first four months of this year were 21.3 percent or almost 5.0 million pounds greater than in the same period of 1961. The exports of cod and related species dropped 3.6 percent, but flounder and sole fillets were up 19.7 percent and herring fillets were up 137.0 percent. During the first four months this year exports to the United States of fresh and frozen fillets and blocks of almost 5.0 million pounds (mostly cod and related species) were down 1.7 percent from the exports of almost 5.1 million pounds in the same period of 1961.

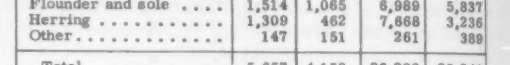
Denmark's exports of fresh and frozen fish fillets and blocks during April 1962 were up 36.2 percent or almost 1.5 million pounds as compared to the same month in 1961. Of the total exports, almost 1.6 million pounds (mostly cod and related species) were shipped to the United States in April.

Denmark's exports of fish meal, fish solubles, and similar products in January-April 1962 were up 64.4 percent or 6,930 tons from the same four months a year earlier.

Denmark's Exports of Fresh and Frozen Fish Fillets and Blocks and Fishery Industrial Products, April 1962 1/

Product	April		Jan.-Apr.	
	1962	1961	1962	1961
	(1,000 Lbs.)			
Fillets and Blocks:				
Cod and related species.	2,687	2,475	13,285	13,787
Flounder and sole	1,514	1,065	6,989	5,837
Herring	1,309	462	7,668	3,236
Other	147	151	261	389
Total	5,657	4,153	28,203	23,249
	(Short Tons)			
Industrial Products:				
Fish meal, fish solubles, and similar products	3,618	839	17,692	10,762

1/Shipments from the Faroe Islands and Greenland direct to foreign countries not included.



Typical wooden fishing craft used in Denmark.

During April 1962, Denmark exported more than 4 times (up 2,779 tons) the meal, fish solubles, and similar products shipped out in the same month of 1961. The principal buyers were the United Kingdom, West Germany, Finland, and Sweden.

Ecuador

GOVERNMENT PLANS AID TO FISHING INDUSTRY:

The Quito newspaper El Comercio, on June 22, 1962, reported that Ecuador's Minister of Development called a meeting of officials of the National Fisheries Institute during the week of June 25 to prepare a program for immediate assistance to the fishing industry. The Minister proposed that the Institute consider: (a) a technical study for improvement of coastal fishing; (b) provision of facilities to enable small fishermen to acquire motors and nets in order to eliminate the primitive methods of the small fishing boats; (c) placing in immediate operation the freezing plants of Manta and Puerto Lopez in order to help small fishermen who lose part of their catch because of lack of refrigeration; (d) installation of freezing plants in other fishing centers;

Ecuador (Contd.):

(e) taking steps to promote establishment of additional canneries and factories for preparation of fish meal; (f) coordinating with the Ministry of Economy the installation of refrigeration in principal cities in order to facilitate increased consumption of fish.

The article states that this program will provide protection to small fishermen, who will be able to receive better prices and be able to sell fish to consumers at lower prices, thereby contributing to improvement of the nutritional level of the Ecuadorean people.

* * * * *

RESTRICTED FISHING ZONE ESTABLISHED OFF COAST:

Purse seiners are prohibited from fishing within 40 marine miles of the Ecuadorean coast between Cabo Pasado and Punta de Santa Elena, according to Decree 749, published in Registro Oficial 170, dated May 31, 1962. The following is an informal translation of the decree.

"No. 749 - Carlos Julio Arosemena Monroy, Constitutional President of the Republic,

"Considering: That, the Manabi Association of Boat Owners (AMAPE) has presented to the Ministry of Development a petition asking that tuna fishing in Ecuadorean waters be regulated in a manner so that it does not adversely affect the national fishing fleet;

"That, having sent a Special Commission of representatives of the Ministry of Development and the Ministry of Defense, it has been established that the activity of Ecuadorean tuna boats would be affected considerably by the system of fishing known as purse seiner; and,

"That, in conformity with Article 13 of the Maritime Hunting and Fishing Law, the Executive Branch is authorized to prohibit, restrict, limit or condition fishing activities,

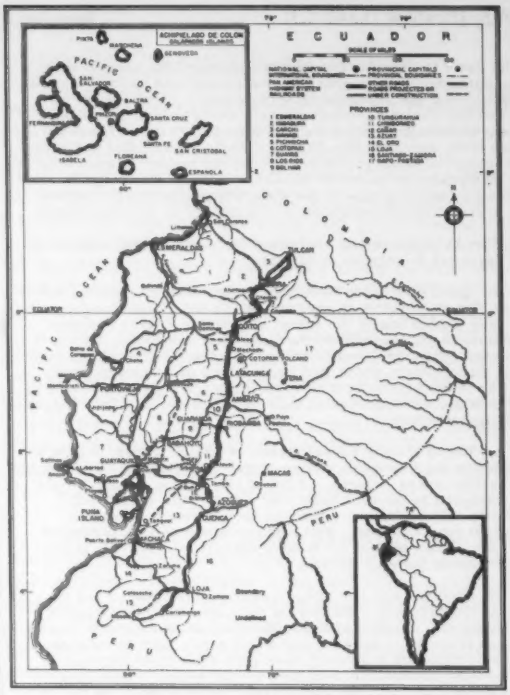
"Decrees: Article 1 - Fishing vessels are prohibited from fishing tuna by means of nets (system known as purse-seiner), in the section of the sea comprehended within the following limits: from the beacon of Cabo Pasado, an imaginary line, 40 marine miles to the west to the point 00° 22'00" south latitude and 81° 10'00" west longitude. From this point with a true route of 195° to another point situated in the sea at 02° 12'00" south latitude and 81° 40'00" west longitude, that is to say, to 40 miles west of Punta de Santa Elena; and from there, with a true route of 90°, until ending on land at Punta de Santa Elena.

"Article 2 - Said zone is declared a National Reserve, in which there will be permitted only fishing by hook-and-line subject to pertinent legal provisions.

"Under the present decree, foreign flag fishing vessels will continue subject to the provisions of Executive Decree No. 991, of May 23, 1961, published in Official Registry No. 229, of June 2 of the same year. (Note: this decree prohibits foreign flag vessels from fishing for bait between Punta de Santa Elena and Cabo Pasado.)

"Article 3 - The prohibition provided in Article 1, modifies the fishing permits granted to purse-seiners, limiting their operations to outside the reserve zone.

"Article 4 - All foreign-flag tuna fishing vessels are obligated to present themselves to the captain of the Ecuadorean port closest to their route, in order to have their documents countersigned, on entering and leaving national territory.



"Article 5 - Authorized Ecuadorean consuls, on granting the matricula and fishing permit, will receive a sworn statement from the captains of fishing vessels, that will be evidenced in writing at the bottom of such documents, that they understand the provisions of the present decree.

"Article 6 - Any violations of the provisions of this decree will be punished in accordance with the sanctions provided in Article 52 of the Maritime Law of Hunting and Fishing.

"Article 7 - The Ministers of Development, Foreign Affairs and Defense are given responsibility for enforcement of this Decree.

"Signed in the National Palace at Quito on May 15, 1962."

Fiji Islands

GOVERNMENT TO APPROVE JAPANESE-BRITISH TUNA BASE:

The plan to establish a large tuna base in the Fiji Islands under a cooperative agreement between the South Pacific Ocean Fisheries Cooperative Association (Japanese) and a British fishing and canning company was expected to be formally approved by the Fijian Government around June 10, 1962. As soon as the Fijian Government approved the project, the Association planned to submit an application to the Japanese Government for approval to engage in the joint enterprise, which calls for the emigration of Japanese fishermen to the Fiji Islands.

Emigration of Japanese fishermen to a foreign country, as planned for in the Fiji Islands tuna venture, is unprecedented in the history of the Japanese overseas fishery. The Director of the Fijian Government Economic Development Program,

Fiji Islands (Contd.):

who came to Japan to conduct preliminary discussions with the Japanese Government, expressed his hope to the Fisheries Agency that the Japanese Government will by all means approve the joint tuna venture, which would help promote the industrial development of the Fiji Islands. Prior to his departure from Japan on May 23, the Director stated that the Fijian Government would probably approve the project around June 10 of this year. He revealed his Government's plan to grant 7-year resident permits to the emigrating Japanese fishermen in order to firmly establish a tuna fishery in the Fiji Islands.

The Association has expressed its views on the emigration of Japanese fishermen as follows:

1. The Fiji Islands tuna base is not merely a fishing venture, but an emigration program which the Fijian Government is fully supporting to the extent of granting 7-year resident permits to Japanese fishermen and their families. We would like the Japanese Government to consider this point. We hope that this venture, which will be operated in accordance with Fijian laws, will contribute to the industrial growth of the Fiji Islands and also provide an opportunity to demonstrate Japan's fishing techniques.

2. Thirty fishing vessels, each of 99 tons gross, will be assigned to the Levuka tuna base in the Fiji Islands. (According to earlier press reports, a total of 100 fishing vessels would be assigned to the tuna base over a four-year span.) All catches will be landed at the Fiji Islands and none will be brought back to Japan. Fishing operations will be organized in such a manner that the fishing vessels will not call at any port outside the Fiji Islands.

3. Japanese are investing heavily in this venture and the Fijian Government, endeavoring to cooperate, has arranged to extend the resident permits for emigrating Japanese fishermen from the original 4 years to 7 years, with provisions for automatically extending them even after their expiration. The Fijian Government has gone to this extent to establish this project and we hope the Japanese Government, on its part, will approve Japanese participation in the joint venture

4. The Association plans to operate 30 fishing vessels at the Fiji Islands base and the vessels are to deliver their catches to the fishing and canning company which will be established with Fijian and Japanese capital. However, the Association hopes to determine the actual size of the fishing fleet in accordance with the capacity of the land facilities and believes that fishing operations can be started by May 1963. (Suisan Keizai Shimbun, June 6, 1962.)

France

FISHING FLEET, 1961:

France's commercial fishing fleet at the end of 1961 numbered 14,206 different types of craft. Of the 1,422 trawlers in operation during the year, 31 were used for fishing and salting fish on the Grand Banks, and 3 were freezer-trawlers. Seventeen vessels of the French tuna fleet were equipped with freezing facilities. Lobster vessels included 31 fitted out with freezing equipment. (La Peche Maritime, May 20, 1962.)

French Fishing Vessels Operating in 1961	
Type Vessel	No. of Vessels
Trawlers	11,422
Tuna clippers	137
Lobster vessels	147
Other fishing vessels	1,700
Small fishing craft1/	10,800
Total	14,206
1/Less than 10 tons.	

Ghana

JAPANESE FISHING COMPANY TO BASE FOUR TUNA VESSELS IN GHANA:

A Japanese fishing company was planning to send Kuroshio Maru Nos. 72 and 73 (each 240 tons gross) to Ghana where they will be employed in pole-and-line fishing. These two vessels were scheduled to depart for Ghana around mid-July.

The number of vessels the Japanese firm plans to employ at the Ghana tuna base now totals 4, including the two pole-and-line vessels Kuroshio Maru Nos. 70 and 71 (each 239 tons gross) dispatched earlier to Ghana. In addition, the firm is reported to have started construction of another tuna vessel of this same size. (Shin Suisan Shimbun Sokuho, June 5, 1962.)

Greece

FISHERY LANDINGS, 1961:

Fishery landings in Greece in 1961 were up 3.2 percent from 1960. The ex-vessel value in 1961 was about 828.0 million drachmas (US$27.6 million), an 8.3 percent drop as compared with the 1960 value of 902.5 million drachmas ($30.1 million).

Greek Fishery Landings by Fishing Areas		
Fishing Area	1961	1960
	(Metric Tons)	
Atlantic	14,500	8,000
Mediterranean	8,500	9,000
Middle and near water (trawlers and purse-seiners)	53,000	58,000
Inshore	10,000	12,000
Lagoons and lakes	6,000	8,000
Total	92,000	95,000

The yield of Greece's various fisheries in 1961 was down, except that the yield of the Atlantic fishery was nearly double that in the previous year.

The average ex-vessel price during 1961 was 9 drachmas per kilo (13.6 U. S. cents a

Greece (Contd.):

a pound), as against 9.5 drachmas a kilo (14.3 cents a pound) in 1960.

* * * * *

COMMERCIAL FISHING VESSEL FLEET, 1961:

The Greek fishing fleet at the end of 1961 was up to nearly 6,000 vessels, according to the annual census taken by Greece's Director of Fisheries (Ministry of Industry). Smaller boats such as gill-netters, drift-netters, long-liners, and other small craft comprised about 80 percent of the Greek commercial fishing fleet.

Greek Fishing Vessels Operating in 1961

Type of Vessel	Number of Vessels
Distant-water freezer-trawlers	13
Middle- and near-water trawlers	369
Purse seiners ("gri-gri")	283
Combination boats ("gri-gri" and trawlers)	138
Small "gri-gri" and similar crafts	173
Trates (small boats using ring nets)	968
Gill-netters, Drift-netters, and Long-liners (small size boats)	3,785
Sponge fishing boats	186
Total	5,915

* * * * *

NEW STEEL TRAWLER BEING BUILT:

A new steel fishing trawler is being built by a Greek shipyard. It is to be the sister-ship of a similar one already under construction. The new vessel will have an overall length of a little more than 85 feet, and will be equipped with a Danish propulsion engine of 280 hp. Construction will be completed by the end of 1962 or in January 1963.

* * * * *

ARTIFICIAL CULTIVATION OF SPONGES:

The installation of the first experimental bed for the artificial cultivation of sponges in Greece was completed early this year, according to a report made to the Greek Director of Fisheries. It was reported that 15,000 sponges were placed in the experimental beds, and that their growth is being closely observed.

* * * * *

SPONGE EXPORTS, 1961:

Greece's sponge exports during 1961 amounted to 203,000 pounds, valued at 175 million drachmas (US$5.8 million), according to the National Statistics Bureau of Greece. (Alieia, 1962.)

Iceland

FISHERIES TRENDS, MAY 1962:

North Coast Herring Season: Two factors were expected to delay the start of Iceland's north coast herring season usually set for about mid-June. One was a strike by the Reykjavik metal workers' union which began May 5, 1962. The strike could postpone the conversion of certain vessels and processing plants to herring operations; however, outside of Reykjavik local labor was used to accomplish this changeover. Another disturbing factor was a demand by the Fishing Vessel Owners for a larger share of the catch. They demand that the percentage of catch to the herring fishermen be reduced to compensate the owners for the cost of new, more efficient equipment which has been installed on many fishing boats. The Fishing Vessel Owners were threatening a lock-out unless this matter was satisfactorily settled.

Herring Exports to Norway End: The Norwegian transport of herring from Iceland to Kristiansund, Norway, stopped after only 2,344 metric tons of a 5,000-ton contract were shipped. The reason for cancellation of the remainder of the contract was Norwegian concern that the Icelandic employers would resort to a lockout on June 1 to obtain satisfactory settlement of their demand for a larger percentage of the catch. The Norwegian action put an end to Faxa Bay herring operations.

Barrels of herring being readied for shipment.

Record Herring Sale to U.S.S.R.: On February 11, 1962, the Icelandic press announced agreement on a contract providing for sale of 5,000 metric tons of frozen herring to the Soviet Union. This was reported to be the largest sale of this type herring which has ever been made and delivery of that amount was expected to use up virtually all the frozen herring available in Iceland early this year.

Iceland (Contd.):

Fish Meal: In contrast to the situation a year ago, all fish and herring meal stocks in Iceland early this year had been sold and the continuing demand could not be met.

Whaling Season Opens: Iceland's whaling season opened on May 20, as usual. The whaling ships returned May 22 with three whales in tow. A fourth whaling vessel was to be added to the fleet when it arrives from Norway. (United States Embassy, Reykjavik, May 24, 1962.)

* * * * *

EXPORTS OF FISHERY PRODUCTS, JANUARY-APRIL 1962:

During January-April 1962, there was a considerable increase in exports of frozen herring, frozen fish fillets, salted herring, herring oil, and herring meal as compared with the same period in 1961, according to the Statistical Bureau of Iceland's Statistical Bulletin, May 1962. Exports of fish meal and ocean perch meal showed a considerable decrease in the first four months of 1962.

* * * * *

FISHERY LANDINGS BY PRINCIPAL SPECIES, JANUARY-MARCH 1962:

Species	January-March	
	1962	1961
	(Metric Tons1/)	
Cod	66,560	58,820
Haddock	12,422	11,557
Saithe	4,546	2,408
Ling	3,444	2,318
Wolffish (catfish)	4,464	4,212
Cusk	3,059	2,875
Ocean perch	2,391	3,771
Halibut	404	419
Herring	27,442	19,537
Shrimp	187	382
Other	1,093	869
Total	126,012	107,168

1/Except for herring which are landed round, all fish are drawn weight.

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Icelandic Fishery Exports, January-April 1962 with Comparisons

Product	Jan.-Apr. 1962			Jan.-Apr. 1961		
	Qty.	Value f.o.b.		Qty.	Value f.o.b.	
	Metric Tons	1,000 kr.	US$ 1,000	Metric Tons	1,000 kr.	US$ 1,000
Salted fish, dried	961	18,886	438	2,158	41,185	1,079
Salted fish, uncured	6,643	81,924	1,901	4,554	47,165	1,236
Wings, salted	159	1,861	43	463	4,433	116
Stockfish	3,361	87,020	2,019	4,274	98,636	2,584
Herring on ice	4,828	16,895	392	2,976	8,898	233
Other fish on ice	12,619	57,258	1,328	10,932	43,386	1,137
Herring, frozen	10,487	53,769	1,247	6,992	34,756	911
Other frozen fish, whole	834	10,649	247	619	6,304	165
Frozen fish fillets	18,475	307,669	7,138	11,580	178,208	4,669
Shrimp and lobster, frozen	77	6,844	159	141	9,870	259
Roes, frozen	505	9,822	228	430	5,391	141
Canned fish	72	4,711	109	101	6,663	175
Cod-liver oil	1,242	10,776	250	1,517	12,277	322
Lumpfish roes, salted	67	969	22	88	1,285	34
Other roes for food, salted	1,494	20,518	476	1,641	16,693	437
Herring, salted	16,268	145,851	3,384	7,667	57,906	1,517
Herring oil	14,267	62,823	1,457	3,815	20,323	532
Ocean perch oil	15	59	1	189	1,075	28
Whale oil	388	2,558	59	-	-	-
Fish meal	8,369	52,076	1,208	17,414	65,563	1,718
Herring meal	14,816	91,861	2,131	7,237	28,758	753
Ocean perch meal	5	23	1	1,459	4,967	130
Wastes of fish, frozen	538	1,463	34	3,207	6,141	161
Liver meal	150	985	23	135	715	19
Lobster and shrimp meal	-	-	-	194	376	10
Whale meal	252	1,310	30	305	1,025	27
Whale meat, frozen	101	712	17	292	1,965	51

Note: Values converted at rate of 1 krónur equals 2.32 U.S. cents in 1962 and 2.62 U. S. cents in 1961.

Iceland (Contd.):

UTILIZATION OF FISHERY LANDINGS, JANUARY-MARCH 1962:

How Utilized	January-March	
	1962	1961
	. . (Metric Tons) . .	
Herring[1]/ for:		
Oil and meal	12,551	5,961
Freezing	7,385	5,045
Salting	2,061	6,037
Fresh on ice	5,375	2,494
Canning	69	-
Groundfish[2]/ for:		
Fresh on ice landed abroad	11,232	7,813
Freezing and filleting	43,293	41,047
Salting	28,100	22,952
Stockfish (dried unsalted)	12,305	12,691
Home consumption	2,787	1,969
Oil and meal	667	777
Shellfish for:		
Freezing (shrimp)	181	270
Canning (shrimp)	6	112
Total production	126,012	107,168

1/Whole fish.
2/Drawn fish.

Indonesia

JAPANESE GOVERNMENT SEEKS INDONESIAN FISHING BASE:

As one of its projects for this year, the Japanese Overseas Fisheries Cooperative Association, a government-sponsored organization, hopes to promote the establishment of a fishing base at Tandjung Periuk nearby Djakarta, Indonesia. Reportedly, a letter has already been written to the Indonesian Government requesting that it approve establishment of the base.

Establishment of a fishing base nearby Djakarta has long been sought by Japan. Negotiations with the Indonesian Government to establish a joint fishing base were first begun three years ago by the Wakayama Prefectural Fisheries Cooperative Association and a Japanese steel import-export firm. Under present plans, the Japanese firms would invest a total of 1 billion yen (US$2.8 million) and engage in bottom fishing and tuna fishing. Japanese tuna vessels would be assigned to the base and part of the $2.8 million would be used to construct tuna vessels in Japan, which would be assigned to the base. Tuna landed at that base would be exported to the United States, with exporting arrangements to be handled by a Japanese marine products trading firm.

Besides firnishing fishing vessels, Japan is to construct freezing, housing, and communication facilities at the Tandjung Periuk base. The Wakayama Fisheries Cooperative Association has been negotiating for some time with the Economic Cooperative Fund (Government fund established in February 1960 with a capital of 5.2 million yen or US$14.4 million, to promote the development of Japanese enterprises in the undeveloped countries in Southeast Asia) to secure sufficient funds to construct the fishing base. Although press reports in April indicated that the Wakayama Association was encountering difficulty in securing a loan, the Economic Cooperative Fund is now unofficially reported to have approved a loan of 80 percent of the total investment. The Fisheries Agency is also reported to have given unofficial appproval to this project. (Shin Suisan Shimbun Sokuho, May 22, 1962, and other publications.)

Israel

TANGANYIKANS TAKE FISHING COURSE IN ISRAEL:

The Government of Israel has organized a four-months course for African officers of the Fisheries Section of the Tanganyikan Ministry of Agriculture. Six Africans have been selected to attend the Michmoret School for Fisheries and Navigation. (United States Embassy, Tel Aviv, May 23, 1962.)

Italy

JOINT UNITED STATES-ITALIAN VENTURE TO CAN AND MARKET TUNA IN ITALY:

A large United States west coast tuna canner representative in Italy reported late in May 1962 that his firm was in the final stages of concluding a joint-venture relationship with the largest Italian fishery firm in Italy. The venture includes the canning of tuna and distributing both the canned product and frozen tuna on the Italian market. The new organization was to be established during the week ending June 2, with headquarters in Rome and an office in Leghorn, the site of the Italian fishery firm's operations.

The stated object of this venture is the marketing in Italy of tuna varieties not adapted to the United States market because of color criteria, i.e., not eligible for the accepted designations of "white meat" or "light meat." Reportedly, the major source of the raw fish for the United States-Italian venture will be Japanese tuna. It is probable, however, that any of the United States firm's stations will ship to the new joint firm in Italy those portions of their catch which are not considered suitable for the United States market. (United States Consul, Milan, report of June 1, 1962.)

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JAPAN SUPPORTS ITALIAN PACKERS' MOVEMENT TO SEEK INCREASE IN FROZEN TUNA IMPORT QUOTA:

The Japanese Foreign Ministry reportedly has instructed the Japanese Embassy in Italy to support the movement now being conducted by Italian packers who are seeking an increase in the frozen tuna import quota established by the Italian Government.

Based on recommendations made by the Common Market, the Italian Government es-

Italy (Contd.):

tablished an annual frozen tuna import quota of 25,000 metric tons, of which 14,000 tons were allocated for imports from Japan and 11,000 tons for imports from other countries. This quota went into effect on January 1, 1962. Reportedly, this quota was determined on the basis of Italy's frozen tuna imports in 1958, but in 1961 Italy imported from Japan alone 28,000 metric tons of frozen tuna. The Italian packers are urging their Government to increase the frozen tuna import quota for the following reasons:

1. Frozen tuna imports of 25,000 metric tons cannot meet the demand of the Italian tuna packers.

2. The present import quota will force Italian packing plants that have been equipped to meet the growing demand for canned tuna to suspend some of their operations.

3. The existing packing plants are equipped to pack fishery products, so from a practical standpoint, they cannot switch to packing of fruits and animal meat. (Suisan Keizai Shimbun, May 18, 1962.)

Ivory Coast

FIRST FISHING VESSEL BUILT:

Recently launched in the Ivory Coast was a 68-foot Diesel-powered sardine fishing vessel with a payload capacity of 18 to 20 tons. It is called the Golitcha, and is equipped with modern radio and radar equipment, and bunks a crew of 6 seamen and 10 fishermen. This is the first commercial fishing vessel built in the Ivory Coast and was constructed under supervision of a Spanish shipwright from Morocco. Keel of a second similar boat has already been laid.

These fishing vessels will boost the budding fishing industry and on-the-job training in modern boat construction in the Ivory Coast. (United States Embassy, Abidjan, report of June 12, 1962.)

Japan

EXPORT PRICES FOR FROZEN TUNA SHIPPED TO U. S.:

The export prices for frozen tuna shipped to the United States directly from Japan were still firm in May 1962. According to the Japa- periodical Suisan Tsushin, United States packers have offered to pay US$335 a short ton f.o.b. Japan for albacore tuna. Although an ex-vessel price as high as $375 per metric ton has been offered by Japanese buyers for clipper-caught tuna, exporters are having difficulties buying fish even at that price.

As of May 1962, albacore catches by the clipper and hook-and-line vessels landing in Japan were all being bought by the canners.

The periodical also reports that United States packers are gradually changing their attitude about buying only small yellowfin, which has been the practice. They are even buying large yellowfin and the Japanese believe that even big-eyed tuna will probably be in demand in the United States in the near future.

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REJECTIONS OF FROZEN YELLOWFIN TUNA BY U. S. PACKERS INCREASE:

Exports of Japanese frozen yellowfin tuna fillets to the United States in the second quarter of 1962 increased but, at the same time, the percentage of rejections of yellowfin tuna by United States importers also increased, according to translations from the June 13 and 19, 1962, issues of Suisan Tsushin. Towards the end of the second quarter, 40 percent of a shipment of 230 tons of fillets exported from Japan proper were rejected by two California packers. Several other large claims involving more than 20 percent of shipments were reported to have been filed by other American packers.

Japanese frozen tuna producers are investigating the cause of the rejections. Shipments delivered to the United States packing companies by the Nanko Maru and the Ishiyama Maru, two nonscheduled freighters, of which a large percentage were rejected, are reported to have consisted wholly of tuna from the Indian Ocean caught off Madagascar in March and April.

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Japan (Contd.):

APRIL-MAY 1962 EXPORTS OF FROZEN TUNA TO UNITED STATES:

Exports of frozen tuna to the United States direct from Japan proper for the first two months (April-May) of the Japanese fiscal year 1962 (April 1962-March 1963) show more than a twofold increase over the same period a year ago, with albacore exports 2,719 short tons and yellowfin exports 11,116 short tons. For April-May 1961, albacore exports totaled 1,141 short tons and yellowfin exports 5,153 short tons.

This increase in exports of frozen tuna to the United States is attributed primarily to increased vessel landings in Japan, making that much more fish available for export, and to the great demand for tuna in the United States. Even tuna normally used by the Japanese fish sausage manufacturers, particularly yellowfin tuna fillets, are being diverted to the export market.

Reportedly, a tight money situation exists in Japan and the Japanese Government has imposed strict controls on the system of discounting promissory notes. Fish dealers are reported to be seeking to avoid marketing their products in Japan since this involves the exchange of promissory notes and are diverting fish to the export market to obtain ready cash. One result of this trend, which is expected to continue for some time, is the increase in claims against poor quality tuna shipments.

Reportedly, for April-May 1962, clipper-caught albacore were exported for $360-$385 a short ton f.o.b. Japan, averaging $370 a short ton. Clipper-caught yellowfin were exported for $340-$360 a short ton f.o.b. Japan, averaging $355 a short ton. (Suisan Tsushin, June 9, 1962.)

* * * * *

FROZEN TUNA EXPORTS TO THE UNITED STATES IN 1961:

Japan's exports of frozen albacore and yellowfin tuna (including fillets and loins) to the United States in 1961 increased 10.6 percent from the previous year, according to the Japanese Export Frozen Tuna Manufacturers Association. The increase was mainly due to more exports of yellowfin tuna fillets and loins. Japanese shipments of albacore tuna (round and processed fish) to the United States market during 1961 rose more than 1 million pounds from the previous year. Deliveries to the United States of round albacore from Japan's mothership landings were 2 million pounds more than in 1960, but were somewhat lower for fish caught or landed by other types of Japanese vessels.

Japanese Exports of Frozen Tuna to the United States by Species, Type, and Original Production Source, 1959-61

Species	1961	1960	1959
	(Short Tons)		
Albacore, round:			
Pole-and-line caught	450	601	705
Iced-fish landings	1,657	2,486	3,241
Mothership landings	7,253	5,175	4,932
Freezer-boat landings	15,664	15,801	14,116
Total	25,024	24,063	22,994
Albacore, dressed	10	10	8
" fillets	1	20	8
" loins	1,355	1,115	917
Total	1,366	1,145	933
Total Albacore	26,390	25,208	23,927
Yellowfin, gilled & gutted, and dressed:			
Iced fish landings	1,238	1,993	6,121
Mothership landings	3,155	4,300	1,443
Freezer-boat landings	19,297	18,509	19,101
Dressed fish	484	75	844
Total	24,174	24,877	27,509
Yellowfin, other:			
Fillets (1-cut)	971	-	-
Fillets (mothership)	86	-	-
Fillets (freezer-boat)	2,923	215	645
Loins	3,157	1,876	2,070
Total	7,137	2,091	2,715
Total Yellowfin	31,311	26,968	30,224
Grand Total	57,701	52,176	54,151

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UNITED STATES TUNA PACKER FILES FOR PATENT:

A large United States tuna packer reportedly has applied for a Japanese patent on its "low-temperature cooking" technique used in processing canned tuna. Should this low-temperature cooking process, which already is widely used in Japan, be approved by the Japan Patent Agency, Japanese packers will no longer be able to use this process unless they pay a royalty to the American packer. The Japan Canned Tuna Producers Association is planning to investigate the patent application and is expected to file an objection with the Patent Agency. (Suisan Tsushin, June 16, 1962.)

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NEW CANNERY TO PACK TUNA:

A large Japanese fishing company in June 1962 completed construction of a new cannery at Shimizu, Shizuoka Prefecture, which has a capacity of producing either 700 cases of canned tuna a day or 1,000 cases of canned man-

Japan (Contd.):

darin oranges per day. Completed at a cost of 30 million yen (US$83,000), the new cannery was built to replace the smaller cannery operated by that company at Shimizu. The old cannery is to be converted into a warehouse. (Suisan Keizai Shimbun, June 29, 1962.)

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GROUP TO STUDY TUNA RESOURCE PROBLEMS:

The first meeting of the council for the problems of the skipjack tuna resources, newly established organization of the Japan Federation of Skipjack Tuna Fisheries Co-ops, was held in June 1962. The objective was to discuss tuna resources among scientists, government officials, and representatives of the industry in general. The council's function was decided to be purely to study resource problems. A meeting of the group will be held every month.

The council will dig into the problems of the tuna resources at a series of meetings. No conclusions or concrete recommendations are expected to come out of the discussions until the group has had three years to study the problems of the tuna resources.

Judging from discussions at the first meeting, the following became clear: (1) The catch ratio of yellowfin was found to be on the decrease all over the sea areas and adequate attention should be given this in the future; also the places where yellowfin live differ according to their age. (2) Resources of albacore have not been ascertained in the Indian Ocean and Atlantic. Also, in the Pacific, resources in its northern and southern parts are different. In the north, natural factors predominate and periodical changes take place every six years. (3) The structure of big-eyed resources is between yellowfin and albacore, and the farther north studies are made, the more apparent become the effects of catch. (Suisan Tsushin, June 12, 1962.)

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TUNA RESEARCH PROGRAM EXPANSION PLANNED:

The Japanese Fisheries Agency reportedly is planning to carry out an extensive tuna research program to cope with the numerous domestic and international problems that are expected to develop in the tuna fisheries. To implement this program, the Agency plans to request a tuna research budget of approximately 53 million yen (US$147,000) for FY 1963 (April 1963-March 1964). The funds will be used to employ about 50 research vessels and training vessels, some of which will be chartered to investigate tuna resources and tuna fishing grounds. The following types of investigations are being planned:

1. Tagging tuna to determine their migration and growth and to identify tuna stocks.

2. Surveying fishing grounds and conducting basic biological studies (investigations on fish size, sexual maturity and distribution of juvenile fish, stomach contents analyses, etc.).

3. Conducting oceanographic surveys to observe the relationship between tuna resources and changes in ocean conditions.

The Fisheries Agency also plans to charter fishing vessels to conduct extensive tagging operations in the equatorial western Pacific Ocean for yellowfin tuna and in the North Pacific Ocean for albacore tuna to estimate the survival and mortality rates of these species and to identify tuna stocks. (Suisan Keizai Shimbun, June 15, 1962.)

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ALBACORE TUNA RESEARCH:

To study albacore tuna schools moving northward, to tag albacore, and to study new fishing gear and new jigs made of synthetic resin to lure fish schools are the objectives of a cruise of the research vessel Tokaidaigaku Maru. The vessel, operated by Tokai University, sailed from Tokyo early in June 1962 for the sea area in the West Pacific, 20°-40° N. latitude, 165° E. longitude.

The vessel formerly belonged to the Shizuoka Prefecture Fisheries Experimental Station. Since it was taken over by the University, it has been equipped with modern instruments and equipment for fishery research.

The Kanagawa Prefecture Fisheries Experimental Station in June received a report from its fisheries guidance ship, Sagami Maru, now studying tuna fishing grounds in the Pacific. The report pointed out that albacore tuna fishing was good in the spring in the sea area on the east side of Australia. Fishing in the area is promising from April through May. Heretofore, this area has been known as a good albacore fishing ground and was

Japan (Contd.):

generally believed to be so only from the fall through winter months. The Station, however, thought that it was also good from spring through summer. As a result of studies made of data gathered in the area, the Station directed the Sagami Maru to sail in April to study albacore fishing in the area during the spring and summer.

The vessel had fished 17 times in the area as of early June and had obtained a catch of some 50 metric tons. The fish were large, weighing 44 pounds each on the average. As of mid-June, the Sagami Maru was heading for the eastern Pacific to investigate fishing grounds there. (Suisan Keizai Shimbun, June 12, 1962, and other Japanese periodicals.)

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ALBACORE AND SKIPJACK TUNA FISHING CONDITIONS EARLY IN JUNE:

The Yaizu Branch of the Tohoku-ku Fisheries Research Institute released information on fishing conditions of skipjack and albacore off Japan during June 1-5, 1962. The report pointed out that for skipjack tuna, a fishing ground (considered as the best in recent years) had developed around a point 50-80 miles west of Hachijojima Island of the Izu Seven Island archipelago. Good fishing was reported on the west side of Miyakejima Island and at two other well-known fishing grounds. Catch averaged ten metric tons of fish a day.

For albacore tuna, good fishing was reported south of the isolated low temperature belt west northwest of Kinan Rock. In the sea area 31°30'-32°30' N. latitude, 145°30'-147°30' E. longitude, 4 or 5 tons a day had been caught. Good fishing was continuing. Around a point 31° N. latitude and 152° E. longitude, some 10 tons were caught daily on the average.

A later report from a different source stated that since the beginning of the season, no heavy landings of summer albacore had been reported the first half of June and poor fishing continued. The fish schools were showing the earlier tendency of dispersing gradually with the shifting of the oceanic conditions to the summer pattern. Without the usual heavy landings, possibilities are that this year's season for summer albacore fishing may come to an end early. The summer albacore fishing this season, which was expected to yield landings of 10,000 metric tons each at Yaizu and Shimizu (the same as last year), as of mid-June was expected to yield considerably less fish.

Consequently, the fishing vessels were showing a tendency to fish for skipjack. Skipjack fishing is more stable than albacore fishing. Since the vessels that have been fishing albacore were expected to shift to skipjack fishing earlier than usual, with the exception of large vessels which would continue fishing albacore as long as it continued to be found in inshore waters, the future of albacore fishing was not bright. (Suisan Keizai Shimbun, June 15, and 19, 1962.)

A report around June 20 stated that poor summer albacore fishing continued. While albacore daily landings were but some 200 tons, skipjack landings were becoming heavy and a few days earlier 400 tons were landed at Yaizu and 180 tons at Shimizu. Packer demand for skipjack was good. But high ex-vessel prices continued, and this placed the canners in a difficult position. (Suisan Tsushin, June 21, 1962.)

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ALBACORE AND SKIPJACK TUNA FISHING CONDITIONS OFF JAPAN, JUNE 1962:

Albacore tuna fishing off the Japanese home islands in June 1962 was reported very poor and landings were averaging less than 100 metric tons a day. Due to poor fishing, ex-vessel albacore prices were not expected to drop below 165 yen to 170 yen per kilogram (US$416-$428 a short ton).

A total of 180 pole-and-line vessels were originally reported to be fishing for albacore off Japan. Of those vessels, over 100 vessels were reported to have switched to skipjack fishing and the remaining 80 vessels were also expected to do so early this summer.

But skipjack fishing off Japan was reported to be very good in June. Packers at Yaizu and Shimizu were reported paying from 80-85 yen per kilogram ($202-$214 a short ton) for large skipjack (over 45 lbs.) and 45-50 yen ($113-$126 a short ton) for small skipjack (2,5-7 lbs.). Packers in the Sanriku district (northeastern Japan) were reported to be paying 70 yen per kilogram ($176 a short ton) for large skipjack and about 50 yen per kilogram ($126 a short ton) for small skipjack. (Suisan Tsushin, June 22, 1962.)

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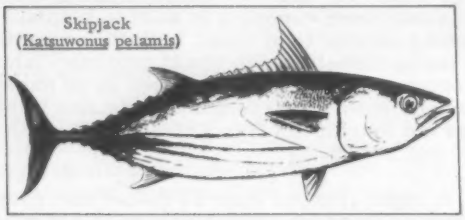
Japan (Contd.):

SKIPJACK TUNA FISHERY TRENDS, JUNE 1962:

Some 12,000 metric tons of skipjack tuna were landed at Choshi, Chiba Prefecture, Japan, early in June 1962. The ex-vessel prices were US$326-377 per metric ton.


Skipjack
(Katsuwonus pelamis)

As compared with 1961, skipjack landings were about 20 days late. The most serious problem this year was a drastic scarcity of sardines used for bait. Some boats were compelled to go as far as Kagoshima Prefecture to get bait. The boats needing 280 buckets of sardines for bait had to be satisfied with only 150 buckets. If more bait was obtainable, more skipjack would be landed.

The vessels were catching skipjack around 320 miles south southeast of Inubozaki Point in Choshi. (Suisan Keizai Shimbun, June 7, 1962.)

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ALBACORE AND SKIPJACK TUNA FISHING IN LATE JUNE 1962:

The Japanese summer albacore fishery off Japan late in June 1962 appeared to have come to an almost complete halt, with only 38 metric tons landed at Yaizu and Shimizu June 20-27. Combined cumulative landings for Yaizu and Shimizu for the period April to June 27 totaled about 4,400 tons, or about one-third the landings for the same period last year when 12,700 metric tons were landed. Almost all the live-bait boats were reported to have switched to skipjack fishing. For the remainder of the season, not more than 200 metric tons of albacore are expected to be landed. This means that this year's summer albacore catch will total less than 5,000 metric tons as compared with 14,800 metric tons for 1961 and 17,300 tons for 1960.

Of this year's albacore catch, practically all was reported to have been canned in brine for export purposes. It is estimated that the pack totals about 200,000 standard cases. Ex-vessel prices during the season ranged from 150 yen per kilogram (US$378 per short ton) at the beginning of the season to a high of 160-170 yen per kilogram ($403-428 per short ton) from mid-May on. Average ex-vessel prices paid by canners were in the neighborhood of 163 yen per kilogram ($411 per short ton).

On the other hand, skipjack fishing off Japan was reported excellent and press reports indicate that as of June 25 the Japanese skipjack pole-and-line fishing vessels were still having good fishing. As of June 20, a total of 12,172 tons of skipjack was landed at Yaizu since fishing commenced in April, an increase in landings of 1,935 metric tons over the same period in 1961. Good skipjack fishing was reported well within one day's running time and the Japanese fishing vessels were reported making 2- to 3-day trips. As many as 30 vessels per day were reported coming in to unload their catches.

Despite the heavy landings, ex-vessel skipjack prices were reported relatively firm, with some decline. Data compiled by the Fisheries Agency show that June 21-25 a total of 1,768 metric tons of skipjack was landed at Yaizu. Ex-vessel prices closed with a high of 95 yen per kilogram ($239 per short ton) and a low of 37 yen per kilogram ($93 per short ton) on June 25. The relatively firm prices were attributed to the almost total absence of albacore landings by the domestic fleet. Reportedly, about half of the skipjack landings are being diverted to the canneries, 10 percent to the fresh fish market, and the remainder to the dried fish market. (Suisan Keizai Shimbun, June 29, Suisan Tsushin, June 30, 1962, and other sources.)

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TUNA CATCH QUOTA FOR SOUTH PACIFIC FISHING BASES MAY BE ESTABLISHED:

Three Japanese fishing firms that are presently conducting tuna fishing operations from bases in the South Pacific Ocean (two from American Samoa and one at Espiritu Santo, New Hebrides) are seeking increases in catch quotas. Interest is being focused on what policy the Fisheries Agency will adopt to handle their requests for catch quota increases since it appears that the Fisheries Agency will no longer be able to authorize quota increases on an individual basis as before because the Japanese fishing companies are continually expanding their overseas tuna base operations. Japanese fishing companies are presently known to be planning joint tuna ventures in the South Pacific Ocean at Tahiti, New Caledonia, the Fiji Islands, and another operation at American Samoa.

The Fisheries Agency will probably first of all establish an over-all quota for the South Pacific Ocean, which it will then allocate to the bases in that area. The over-all quota will have to be determined each year, but for the time being it appears likely that the Agency will allocate quotas for only those bases where tuna fishing can be conducted this year, such as American Samoa, Espiritu Santo, French Tahiti, and French New Caledonia. (Suisan Tsushin, June 11, 1962.)

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SOUTH PACIFIC MOTHERSHIP FLEET CATCHING MOSTLY YELLOWFIN TUNA:

The Japanese Nojima Maru (8,800 gross tons) tuna mothership fleet started fishing in the Fiji Islands area on May 27, 1962. As of May 1, the mothership fleet was reported to have landed a total of 536 metric tons, mainly

Japan (Contd.):

yellowfin tuna. The mothership was reported operating in the vicinity of 2°-5° S. latitude, 172° E. longitude. (Suisan Keizai Shimbun, June 7, 1962.)

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ATLANTIC OCEAN FROZEN TUNA EXPORT PRICES RAISED:

The Japan Frozen Foods Exporters Association announced in June 1962 that export prices of frozen tuna to Europe in June 1962 were raised by an average of $10 a metric ton for some tuna species over April-May prices.

Japanese Atlantic Ocean Tuna Export Prices, June 1962

	Yellowfin	Big-Eyed
	(US$/Metric Ton)	
Exports to:		
Italy1/	360	345
Yugoslavia, Tunisia1/	370	355
Czechoslovakia2/	370	355

1/Prices are c.i.f., including 3 percent broker's commission.
2/Prices are c.i.f., not including 3 percent broker's commission.

The Association also announced the following f.o.b. prices for Atlantic Ocean tuna exported to the United States: albacore--$350 a short ton; yellowfin (gilled and gutted)--$300 a short ton; yellowfin (dressed)--$310 a short ton. (Suisan Tsushin, June 23, 1962.)

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ATLANTIC OCEAN TUNA FISHING CONDITIONS IN LATE JUNE 1962:

Japanese tuna fishing vessels fishing in the Atlantic Ocean were reported to total 68 vessels as of late June 1962, compared with 80 in March, 77 in April, and 69 in May. The decline in the number of vessels fishing in the Atlantic Ocean is attributed to poor tuna fishing.

Fishing vessel reports in June indicated that the peak of the yellowfin tuna fishing in the Atlantic Ocean appeared to have passed and big-eyed tuna were appearing in larger numbers in the catch, making up about 40 percent of individual vessel catches. The fishing vessels were reported to be averaging about 4-5 metric tons per day per vessel. (Suisan Tsushin, June 29, 1962.)

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PRODUCERS DISCUSS DECLINING ATLANTIC OCEAN TUNA CATCH:

The Japanese Export Frozen Tuna Producers Association held its first meeting of Fiscal Year 1962 (April 1962-March 1963) on June 4 and conferred on steps the Association should take to cope with the poor fishing in the Atlantic Ocean. According to the catch index compiled by the Tuna Producers Association based on 1959 as 100, in 1960 the catch index was 91.6, in 1961 it dropped to 80.7, and for the period January-June 1962 the index dropped to 68. (Index is compiled by dividing the total annual landings by the total number of vessels in operation for the year. The total number of vessels is derived by adding the number of vessels in operation each month.) The catch index for January-December 1962 is expected to drop below 60, since fishing is usually poorer between July-December. Considering the fact that fishing vessels are becoming larger in size every year, plus the fact that their operating efficiency has increased, the catch rate this year has actually dropped to less than half that in 1959.

The Producers Association discussed the following measures to cope with the declining Atlantic Ocean catches:

1. Prevent more vessels from being added to the Atlantic Ocean tuna fishing fleet, liberalize transshipment quotas for the Indian and Pacific Oceans, and thereby increase the efficiency of the vessels operating in those oceans.

2. Increase the operation of portable fishing vessels.

3. Give preferential treatment to fishing vessels that discover new fishing grounds.

The Association did not arrive at any conclusion concerning the above points but did agree on these points:

1. Tuna resources in the Atlantic Ocean definitely do not look favorable to the fishing industry, so the Japanese Government must be made aware of this situation.

2. Tuna demand is strong, but to meet this demand, the tuna industry must increase the efficiency of fishing vessels, instead of increasing the number of fishing vessels. (Suisan Tsushin, June 6, 1962.)

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Japan (Contd.):

FISHERIES AGENCY TO ANNOUNCE NEW TUNA LICENSING POLICY:

The Japanese Fisheries Agency is reported to have completed a draft of a new broad policy concerning the licensing of displaced salmon fishing vessels as tuna vessels, operation of portable-vessel-carrying tuna motherships and regular tuna motherships, and the establishment of tuna bases overseas. Reportedly, the Agency was to solicit the views of the National Federation of Tuna Fisheries Cooperative Associations during the week of June 24 concerning the draft regulation, and the Agency was expected to formulate a definite policy by July 7. (Suisan Keizai Shimbun, June 23, 1962.)

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FISHING COMPANY TO BUILD TEN TUNA VESSELS:

A large Japanese fishing company is planning to build ten 99-ton tuna vessels, as replacements for the ten salmon vessels belonging to its affiliated companies, which were displaced from the salmon fishery this year. The firm has already made tentative arrangements to have the tuna vessels built by three shipbuilding companies. The vessels will be assigned to the firm's tuna mothership fleet. (Suisan Tsushin, June 13, 1962.)

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JAPANESE GOVERNMENT APPROVES INDONESIAN TUNA BASE:

The Japanese Overseas Fisheries Cooperative Association (a Government corporation) announced on June 20 that the Japanese Government has approved the establishment of a joint Japanese-Indonesian tuna base at Tandjung Periuk, Indonesia. Participants in this joint enterprise are the Wakayama Prefectural Fisheries Cooperative Association, a steel import-export firm of Japan, and the Government of Indonesia. The Cooperative Association also revealed in June 1962 that the Japanese Government has already tentatively approved the extension of Government loans for the venture.

The joint tuna base wil be established at the port of Tandjung Periuk near Djakarta. Base installations will include a cold-storage plant, a canning plant, and medical facilities.

A total investment loan equivalent to US$2.6 million will be advanced by the Overseas Economic Cooperative Fund (Japanese Government loan corporation) and other sources.

Initially the Wakayama Prefectural Fisheries Cooperative Association and the steel firm will participate in the joint venture. If results are favorable, other firms will be welcomed to participate in the establishment of a second base.

The Japanese Government approved the fisheries agreement in April at the conference involving the Ministries of Finance, Agriculture-Forestry, and Foreign Affairs, and the Cabinet Planning Board.

Implementation of this plan is being withheld until the Indonesian Government approves the agreement.

Negotiations for the venture were brought to a conclusion when the chairman of the Overseas Fisheries Cooperative Association presented his proposals to the Indonesian Government in March 1962. (Shin Suisan Shimbun Sokuho, June 22, 1962.)

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TUNA LANDINGS FOR FY 1961:

Japanese landings of tuna and tuna-like fish totaled 651,355 metric tons in fiscal year 1961 (April 1961-March 1962), according to data compiled by the Fisheries Agency. This was an increase of over 105,620 metric tons over the FY 1960 (April 1960-March 1961)

A new Japanese tuna long-liner.

Japan (Contd.):

catch. The previous high catch was recorded in FY 1959 (April 1959-March 1960) when 562,991 metric tons were landed. (Suisan Keizai Shimbun, June 7, 1962.)

Landings by principal tuna fisheries as reported in the Japanese press:

Fishery	Landings	
	FY 1961	FY 1960 1/
	. . . (Metric Tons) . . .	
Skipjack pole-and-line fishery . . .	167,147	109,577
Tuna long-line fishery	351,055	322,798
Tuna mothership fishery	28,932	23,894
Atlantic Ocean tuna fishery	82,251	72,946

1/Data from "Annual Report of Catch Statistics on Fishery and Agriculture, 1960," published by the Survey and Statistics Division, Ministry of Agriculture and Forestry.

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FIVE TUNA VESSELS FOR CUBA:

A Japanese shipbuilding firm in Kyushu has received an order from the Cuban Government for five tuna vessels. These vessels are now being built. The first vessel will be launched on July 21 and completely outfitted by the end of August this year. Specifications of the tuna vessels are as follows: Gross tonnage--350 tons, engine--700 hp. Diesel, cruising speed--11.5 knots. (Minato Shimbun, June 20, 1962.)

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NORTH PACIFIC MOTHERSHIP SALMON FISHERY CATCH QUOTA:

The Japanese Fisheries Agency Director announced on May 28, 1962, that the Japanese salmon catch quota of 55,000 metric tons for Area A (Treaty waters north of 45° N. latitude) agreed upon by the Soviet Union and Japan at the sixth annual meeting of the Northwest Pacific Fisheries Commission (U.S.S.R.-Japan) held at Moscow will be allocated as follows: (1) mothership-type salmon fishery--44,665 metric tons; (2) land-based gill-net fishery--10,335 metric tons. (Suisan Tsushin, May 29, 1962.)

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POSITION ON NORTH PACIFIC FISHERIES CONVENTION:

The Japanese periodical Suisan Keizai Shimbun of June 3, 1962, states that in preparation for the forthcoming interim meeting of the Japan-United States-Canada North Pacific Fisheries Commission scheduled to be held in August this year at Honolulu, the Japanese Agriculture and Forestry Ministry and the Foreign Ministry were scheduled to meet during the week of June 3 to study the position that the Japanese Government should take regarding renegotiation of the Japan-United States-Canada Fisheries Convention. The Japanese Government was expected to focus its attention at this time on the abstention principle contained in the Tripartite Fisheries Treaty. ". . .and many Japanese hold the view that the abstention principle violates the principle of freedom of the high seas and has no biological basis whatsoever," states the periodical.

The Japanese Government is expected to study this principle carefully, for the position adopted by Japan on the Tripartite Convention is expected to have an important bearing on Japan's relations with the Soviet Union, South Korea, and Communist China. The Japanese Government is also expected to give full consideration to the matter of trade between Japan and the United States, for the United States may apply pressure in the form of trade restraints should Japan decide to withdraw from the Convention.

According to Suisan Keizai Shimbun of June 9, the Japan-United States-Canada Fisheries Research Society, composed of Japanese fishery scientists and experts in international law, which was formed in Japan in 1961 to study the Tripartite Fisheries Convention problem, had held 17 meetings to date. The Society was planning to publish a report on its findings around June 20. The report contains a study of the problems related to salmon and halibut stocks, which are on the abstention list in the Convention, examination of the abstention principle in the light of international law governing the high seas, and observations based on the biology of fish. The Japanese Government plans to refer to this report as a guide in determining the position it should take with respect to its intention concerning the Tripartite Convention.

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FROZEN HALIBUT EXPORT PRICES UP:

The halibut market in Japan was reported to be very firm and active, with ex-vessel halibut prices ranging from 160-170 yen or more per kilogram (20.1-21.4 U. S. cents per pound), compared with last year's ex-vessel price of around 120 yen per kilogram (15.1 cents per pound). June export prices for forzen halibut steaks were 45-46 cents per pound c.&f. U. S. Pacific Coast. These prices are considerably higher than last year's export prices of 37-38 cents per pound for steaks

Japan (Contd.):

and around 30 cents per pound for dressed halibut. The export of frozen dressed halibut is small.

Halibut exports to the United States in FY 1961 (April 1961-March 1962) totaled 990 short tons valued at US$568,000; in FY 1960 (April 1960-March 1961) 411 short tons, valued at US$260,000. (Translated from Japanese periodical Suisan Tsushin, June 18, 1962.)

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KING CRAB FALL CATCH QUOTA SET FOR BRISTOL BAY:

The Japanese Fisheries Agency called the directors of the large Japanese fishing companies for a meeting on May 28, 1962, and revealed to them the Agency's policy concerning the licensing of this year's fall king crab operations in Bristol Bay. According to the Agency, two king crab freezer factoryships will be permitted to operate in Bristol Bay this fall to pack a total of 750 metric tons of frozen king crab meat.

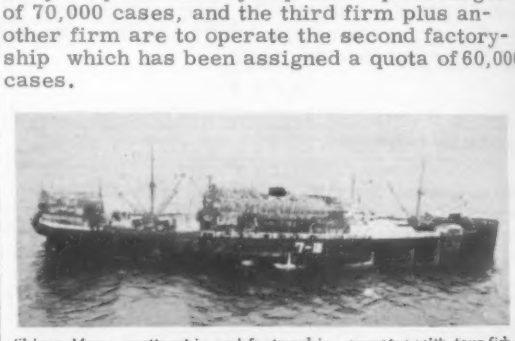
The two fleets are being designated as Fleet A and Fleet B. Fleet A will be operated jointly by four Japanese fishing firms and will be allowed to pack 400 metric tons of frozen king crab meat with each of the four companies sharing equally in the pack. Fleet B will be operated jointly by four other Japanese firms and will be allowed to pack 350 metric tons of frozen king crab meat. Of the firms participating in Fleet B, 3 of the companies will be allotted shares of 100 metric tons each. The fourth company's share will be 50 metric tons.

The two fleets will be permitted to depart for the Bristol Bay king crab fishing grounds after August 1 and they must return to Japan by November 30, 1962. Also, the fleets will be restricted from operating in those areas in Bristol Bay where bottom trawling is presently prohibited by the Agency. (Suisan Tsushin, May 29, 1962.)

Editor's Note: For some years, only two king crab fleets have been licensed to operate in the Bristol Bay area. They were the Tokei Maru (4,998 gross tons) fleet licensed to can king crab meat (1961 quota--80,000 cases of 48 6.5-oz. cans) and the Shinyo Maru (5,630 gross tons) fleet, whose 1961 catch quota was 200 metric tons of frozen king crab meat. Both of those motherships operate in the Bristol Bay area in the spring and summer months.

In August 1961 the Japanese Fisheries Agency, for the first time, permitted fall king crab fishing in Bristol Bay. Six large companies were permitted to operate a total of 3 freezer vessels to process an aggregate total of 700 metric tons of frozen king crab meat, the vessels being the Banshu Maru No. 31 (1,547 gross tons), Eijin Maru (1,494 gross tons), and the Chichibu Maru No. 2 (1,500 gross tons).

Then, in December 1961, the Fisheries Agency authorized the operation of a second king crab factoryship in Bristol Bay in spring-summer 1962, and allotted a combined pack target of 130,000 cases to the two factoryships. This represents an increase of 50,000 cases over that previously allotted to the Tokei Maru, which has been operating in the Bristol Bay waters since 1953 under the joint management of 3 Japanese fishery firms. Of the two factoryships, two of the three firms are to operate jointly one factoryship with a pack target of 70,000 cases, and the third firm plus another firm are to operate the second factoryship which has been assigned a quota of 60,000 cases.



Shinyo Maru, mothership and factoryship, operates with four fishing vessels. Amidships and on poop deck can be seen large drying racks for tangle nets used by fishing vessels.

At the same time, the Fisheries Agency increased the production target of the king crab freezer vessel Shinyo Maru, operated by still another firm, an additional 100 metric tons, to a total of 300 metric tons of frozen king crab meat.

The total king crab production in Bristol Bay authorized by the Fisheries Agency in 1962 is as follows: Spring-summer 1962: two crab canning factoryships--130,000 cases of king crab; Shinyo Maru--300 metric tons of frozen king crab meat. Fall 1962: two freezer factoryships--750 metric tons of frozen king crab meat.

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Japan (Contd.):

TWO FISH CARRIERS RETURN FROM BOTTOMFISH FISHERY IN NORTH PACIFIC:

The first carrier from the bottomfish fishing grounds in the North Pacific and Bering Sea returned to Tokyo with a load of halibut and sablefish (silver cod) the early part of June 1962, according to a translation from the Japanese periodical Suisan Keizai Shimbun, June 2, 1962. The carrier was the Banshu Maru No. 32. It had a cargo of 450 tons of fish of which 70 percent was halibut and 30 percent sablefish or silver cod. The Tokyo Central Market readily disposed of some 1,000 boxes of the first shipment because there were no stocks on hand.

The owner of the Banshu Maru No. 32 decided to fix the price of halibut, for which there was a good demand, at $452 per metric ton. But after consultation with wholesalers and jobbers, it was agreed to tentatively make it $427 per ton. The price was some 50 percent more than last year's $289 per ton.

The medium-size halibut was disposed of quickly. As soon as the weather improved, it was expected that both the halibut and sablefish would be sold out without difficulty as there were practically no stocks on hand then.

The same firm's second carrier loaded with 400 tons was expected to arrive later with halibut and sablefish (silver cod) as well as with other bottomfish.

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MAKEUP OF BERING SEA BOTTOMFISH FLEET:

The Japanese periodical The Fishing Industry Weekly of June 5, 1962, lists 19 Japanese mothership-type bottomfish fleets as having been licensed to operate in the Bering

Fig. 1 - Fish meal factoryship Gyokuei Maru operating in Bering Sea.

Japanese Bering Sea Bottomfish Fleet, 1962

Mothership	Size	No. Catcher Vessels	Area of Operation	Kind of Operation
	Gross Tons			
No. 15 Kotobuki Maru	-	2	ABC	Freezership
No. 11 Seisho Maru	-	2	ABC	Freezership
No. 22 Seisho Maru	-	2	ABC	Freezership
No. 2 Chichibu Maru	-	7	ABCDF	Freezership
Einin Maru	7,482	10	ABCDF	Factoryship (shrimp)
Eiyo Maru	2,600	10	ABCDF	Freezership
Itsukushima Maru	5,889	14	ABCDF	Freezership
Kaiko Maru	2,940	4	ABCDF	Factoryship (shrimp)
Keiyo Maru	3,700	16	ABCDF	Freezership
Seifu Maru	8,269	25	ABCDF	Freezership
Shikishima Maru	10,144	18	ABCDF	Freezership
Gyokuei Maru	12,100	27	DE	Fish meal factoryship
Kinyo Maru	9,373	27	DE	Fish meal factoryship
Renshin Maru	14,094	29	DE	Fish meal factoryship
Soyo Maru	11,192	28	DE	Fish meal factoryship
Shinyo Maru	5,630	6	DE	Freezership (king crab)
Tenyo Maru	11,581	26	F	Fish meal-oil factoryship
Kyokko Maru	8,601	12	-	Freezership
Junko Maru	-	3	-	Freezership

Note: Areas A, B, C, and D include the waters in the Bering Sea between 170° E. longitude and 170° W. longitude; Area E includes waters to the east of 170° W. longitude; and Area F is the triangular area formed by a line extending from Cape Navarin to the Aleutian Islands along 180° longitude, east to Cape Sarichef, Unimak Island, and back to Cape Navarin.

Japan (Contd.):

Fig. 2 - Wooden Japanese trawler with gear in fishing position. This vessel fishing for fish meal factoryship Kinjo Maru in Bering Sea.

Sea this year. This list is by no means complete. For example, the factoryship Chichibu Maru, which departed Japan on June 6 for the eastern Bering Sea to engage in shrimp fishing, is not included.

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SHRIMP FISHING OFF PRIBILOF ISLANDS, 1962:

The Japanese Fisheries Agency licensed 23 motherships to fish for bottomfish in the Bering Sea for the 1962 season as compared to 33 motherships licensed in 1961. Four motherships of the 1962 fleet (Kaiko Maru, Einin Maru, Kyoko Maru, and Chichibu Maru) have been licensed to catch shrimp in the course of bottomfish operations. Two of the motherships (Kaiko Maru and Einin Maru) are already on the shrimp grounds, located in the vicinity of the Pribilof Islands. The two motherships departed from Japan on May 1 and April 21, respectively. The other two vessels are now en route to that area.

The over-all shrimp catch target for the four vessels, as indicated in the license applications, is 17,564 metric tons. The Einin Maru catch target is 7,620 tons; Kaiko Maru, 4,400 tons; Kyoko Maru, 1,444 tons; and Chichibu Maru, 4,100 tons.

Shrimp production to May 31 totaled 1,186 tors, of which 974 tons were landed by catcher boats of the Einin Maru and 212 tons by the Kyoko Maru fleet. It is reported that on May 31, 16,080 cases of shrimp (24 8-oz. cans per case) had been packed on the Einin Maru. No information is available on quantities, if any, of shrimp processed as raw-peeled shrimp. Shrimp processing on the Kyoko Maru is limited to freezing only, according to a June 11 report from the Fisheries Attache, United States Embassy, Tokyo.

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CANNED SHRIMP PACK IN BERING SEA BY FACTORYSHIP:

The Japanese shrimp factoryship Einin Maru (7,482 gross tons), operating in the eastern Bering Sea, has produced over 100,000 cases (24 8-oz. cans) of shrimp as of June 15, 1962. At the present rate of production, the factoryship is expected to exceed its target of 300,000 cases.

The Einin Maru has been on the fishing grounds since May 1 and was producing an average of 2,500-3,000 cases of shrimp per day in early June. (Suisan Keizai Shimbun, June 17, 1962.)

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BOTTOMFISH MOTHERSHIP FLEET DEPARTS FOR ALEUTIAN WATERS:

The bottomfish mothership Chichibu Maru (5,500 gross tons), accompanied by 8 catcher vessels, departed Hakodate, Hokkaido, on June 6, 1962, for Aleutian waters. The Chichibu Maru fleet will engage primarily in the production of shrimp, which it will can. The mothership is equipped with a one-line shrimp canning operation.

The same Japanese fishing company that operates the Chichibu Maru has one other mothership-type fleet operating in the Bering Sea, the Chichibu Maru No. 2 fleet, composed of the mothership Chichibu Maru No. 2 and 7 trawlers. In addition, the same firm is operating two large 1,500-ton stern trawlers, Akebono Maru Nos. 51 and 52, in the eastern Bering Sea.

The stern trawler Akebono Maru No. 50 (1,470 gross tons), also belonging to the same company, departed Japan on May 23, for the trawl fishing grounds off the coast of Australia. (Suisan Tsushin and Shin Suisan Shimbun Sokuho, June 5, 1962.)

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EXPORTS OF FROZEN FISHERY PRODUCTS (EXCLUDING TUNA) TO THE U. S., FISCAL YEAR 1961:

There were some sharp declines and some sharp increases in Japanese exports of frozen fishery products other than tuna to the United States during fiscal year 1961

Japan (Contd.):

Japanese Frozen Fishery Products Exports to U. S., Fiscal Years 1960-1961

Product	FY 1961	FY 1960
	(Short Tons)	
Frog legs	399	321
Rainbow trout	972	1,030
Shrimp	902	935
Halibut	990	411
Smelt	52	103
Black marlin	265	268
Sea bream	556	632
Cuttlefish	196	331
Octopus	909	811
Butterfish	40	61
Dolphin	356	395
Other fish	864	281
Whale meat	2,905	5,717
Crab	17	56
Oyster	59	32
Shellfish, misc.	217	170
Other products	54	3

(April 1961-March 1962), according to Suisan Tsushin of June 7, 1962.

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U. S. S. R. REACTION TO CERTAIN JAPANESE FISHERY PROPOSALS:

The Japanese Fisheries Agency on June 5 published the reply from the Soviet Union through diplomatic channels on certain Japanese fishery proposals.

(1) Rejected was the proposal for Soviet permission for Japanese Hokkaido fishermen to take sea tangle or kelp in Soviet "territorial waters" around the Habomae and Shikotan Islands under a license issued by the Japan Fishery Society, with license fee eventually being paid to the Soviets. But sale of Soviet-taken sea tangle or kelp to the Japanese may be considered. Soviet Premier Khrushchev declared that entry of Japanese fishing vessels into Soviet waters absolutely could not be allowed until a peace treaty was concluded between the two countries. Reportedly, the Soviet Union's attitude represents a complete reversal of the friendly attitude that had prevailed during the talks on this subject held between Agriculture and Forestry Minister Kono and Premier Khrushchev in Moscow during this year's Japan-Soviet fisheries negotiations.

(2) The selling of fresh salmon to the Japanese was being studied by Soviet specialists. The specialists were scheduled to go to Japan by June 15, with information as to the quantity, method of sale, delivery place, etc.

(3) As to the artificial propagation of salmon in Siberian rivers, the matter will be deliberated at the 1963 Northwest Pacific Fisheries Commission meeting, when both Japan and the U. S. S. R. would reveal their plans to each other.

(4) The Soviets are interested in the purchase of a tuna fishing fleet. Whether existing vessels would be bought or newly-built boats would be procured shall be studied by the Soviet Trade Ministry. (Translations of Japanese newspaper articles, June 6, 1962.)

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PARTICIPATION IN NORTHWEST ATLANTIC FISHERIES COMMISSION BEING CONSIDERED:

The Japanese fishing industry is showing interest in the meeting of the Northwest Atlantic Fisheries Commission which convened in Moscow on June 4, 1962. Although Japanese vessels do not presently fish in the northwest Atlantic Ocean, the Japanese fishing industry feels that the Commission, consisting of 13 nations, will eventually come to exercise an important influence in guiding the world's fishery conservation policy. Therefore, Japan reportedly is considering participating in this Commission in the near future as an observer. (Minato Shimbun, June 10, 1962.)

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GOVERNMENT STUDYING NORTHWEST ATLANTIC TRAWL FISHERY:

The Japanese Fisheries Agency in June 1962 was reported to have received several inquiries from Japanese firms concerning the licensing of Japanese trawling operations in the northwest Atlantic Ocean. Reportedly, the Fisheries Agency is conducting a study of the northwest Atlantic trawl fishery and is shortly expected to announce its views concerning this matter. (Shin Suisan Shimbun Sokuho, June 16, 1962.)

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TRAWL SURVEY TO BE MADE IN OKHOTSK SEA:

The Japanese Fisheries Agency's research vessel Taiyo Maru No. 15 was scheduled to depart Otaru, Hokkaido, on June 17, 1962, to conduct a survey of the bottom fishing grounds in the waters off West Kamchatka. The research vessel will operate in the areas east of of 148° E. longitude between 53° N. and 56° N. latitude. (Minato Shimbun, June 16, 1962.)

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Japan (Contd.):

LARGE STERN TRAWLER COMPLETED:

A Japanese fishing company took delivery of its new large stern trawler Nichinan Maru (2,518 gross tons) on June 21. After a test run off Japan, the Nichinan Maru, which was constructed as a replacement for the Tatsuta Maru (561 gross tons), was dispatched to the trawling grounds off West Africa on July 2. (Minato Shimbun, June 20, 1962.)

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TRAWLERS DEPART FOR WEST AFRICA AND AUSTRALIA:

A large Japanese fishing company's trawler, the Taiyo Maru No. 56 (744 gross tons), which early in June 1962 returned from the fishing grounds off South Africa, departed Shimonoseki, Japan, for the trawl fishing grounds off northwest Australia on June 8. The same firm's 1,500-ton stern trawler Taiyo Maru No. 63 was scheduled to depart for West Africa on June 9 and will operate out of that company's base at Las Palmas, Canary Islands.

Four other trawlers, each of 499 tons gross, also belonging to the same Japanese firm, were due to arrive at Shimonoseki with capacity loads between June 11 and 23. They are the trawlers Taiyo Maru, and Taiyo Maru Nos. 2, 3, and 5, which operated off Australia since April. (Minato Shimbun, June 9, 1962.)

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HERRING BOUGHT FROM U. S. S. R.:

The Hokkaido Federation of Fisheries Cooperatives the latter part of May 1962 decided to import 1,189 metric tons (worth US$113,000) of fresh herring from the Soviet Union. A fleet of Japanese vessels, led by the Taisei Maru (402 tons) was scheduled to sail from Wakkanai, Hokkaido, to load the fish at a Russian port.

This is the third time the Hokkaido Federation has imported fresh herring from Russia. (Suisan Keizai Shimbun, May 30, 1962.)

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STUDY OF WORLD FISHERY TRENDS PLANNED:

The Japanese Fisheries Agency is reported to be planning on launching a 3-year foreign fisheries investigation program to analyze world fishery trends and to formulate a basic policy dealing with international fishery problems. Among the problems to be considered are fishing regulations and trade restrictions by foreign countries that are bound to affect Japan's fishing industry, as well as Japanese aid to underdeveloped countries. The Agency hopes to start the program in FY 1963 (April 1963-March 1964) and is currently preparing a budget for the program. The program will be carried out in three phases:

FY 1963--Investigation of the structures of fishery organizations in European and North and South American countries, particularly their price support systems, marketing conditions, and trends in supply and demand of fishery products.

FY 1964 (April 1964-March 1965)--Investigation of fishing ground management programs, regulatory and enforcement measures, and methods of settling disputes in foreign countries, including international fisheries commissions.

FY 1965 (April 1965-March 1966)--Investigation on extent of foreign economic aid on fishery provided by other countries of the world; investigation of foreign fishery competition (for example, trawl fishing and tuna fishing), and of technological and economic competition.

The Fisheries Agency hopes to conduct the above investigations through field investigations where possible and by subscribing to and examining foreign publications. Assistance of other Japanese Government agencies will be sought. In FY 1963, the foreign countries to be studied will be the United States, Great Britain, Canada, Australia, Germany, France, Norway, Communist China, South Korea, and the Soviet Union.

At the same time, in investigating and analyzing foreign fishery developments and trends, the Fisheries Agency hopes to undertake a study, beginning in FY 1963, of its own domestic fishery for the purpose of establishing a long-range fishery program to insure a rational development of its fisheries. (Suisan Tsushin, July 2, and Suisan Keizai Shimbun, July 1, 1962.)

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CANNED FISHERY PRODUCTS EXPORTS, 1961:

Exports of canned fishery products in 1961 dropped 7.4 percent from those in 1960.

Japan (Contd.):

Japanese Canned Fishery Products Exports, 1961 and 1960

Product	Jan.-Dec. 1961				Jan.-Dec. 1960
	To United States	To Canada	To Other Countries	Total	Total
	(Actual Cases)				
Crab meat	211,461	4,927	248,852	465,240	489,095
Tuna:					
In oil		186,888	1,300,371	1,487,259	1,401,297
In brine	2,218,857	-	-	2,218,857	2,035,195
Other types	633	7,413	215,252	223,298	104,822
Mackerel-pike	9,577	170	320,590	330,337	1,042,095
Sardines	5,191	30	275,170	280,391	718,645
Horse-mackerel	45	-	706,971	707,016	472,378
Salmon, trout	99,601	258	1,134,591	1,234,450	1,671,914
Other fish	20,751	8,825	585,002	614,578	328,266
Shellfish	340,510	112,183	74,122	526,815	476,899
Other aquatic products	6,970	233	7,119	14,322	7,391
Total	2,913,596	320,927	4,868,040	8,102,563	8,747,997

The decline was steep for several of the important products. Exports of canned mackerel-pike were 68.3 percent lower than in 1960; sardines declined 61 percent; and salmon dropped 26.2 percent. Declines in those products were somewhat offset by an 11-percent increase in canned tuna exports, and gains in unclassified fish and shellfish.

日本

Republic of Korea

ITALY TO BUILD LARGE NUMBER OF FISHING VESSELS FOR SOUTH KOREA:

An agreement providing for the building and purchase of 950 fishing vessels from an Italian group by the Republic of Korea was signed in February 1962. Some of the details appeared in the Tonga Ilbo of February 12, 1962.

Since the announcement in February that the Italians and Koreans were working on an arrangement whereby fishing vessels would be supplied to the Koreans from Italy, there have been discussions concerning the type and tonnage of the vessels, the country where the vessels are to be built, insurance coverage, and other functional and administrative problems. As of June 1962, an effective resolution of those problems had not been announced.

A translation of the Tonga Ilbo news items follows.

An agreement was formally signed (February 11, 1962) between the Government and an Italian business representative to import US$100 million worth of construction materials for fishing boats, to be financed from Italian private loans. The agreement was concluded between Korean Subcommittee Chairman Tong-Ha Kim and a representative of the Italian Trading Office, on behalf of the Italian Shipbuilding Corporation.

Under the agreement, Korea will import a total 120,000 tons of fishing vessel construction materials from Italy with loans from that country, with which some 950 vessels can be built. This inducement of foreign private loan investment is expected to make a turning point in the development of Korea's fisheries and marine industries, Kim told reporters after the signing of the agreement.

In accordance with this agreement, the Korean Government will build a shipbuilding yard to construct the planned 950 fishing vessels within three years. The Italian shipbuilding firm is to provide technical assistance for the building of the vessels under the agreement. The Government also plans to set up a fisheries and marine industry center at the shipbuilding yard by installing refrigeration, ice-making, and processing facilities for fish and other marine products.

The shipbuilding materials to be imported under the agreement will be worth more than $100 million at world market prices. The Government will repay the loans on an annual installment basis for 7 to 8 years, at an interest rate of 6 percent per year. After all the planned 950 fishing vessels are built and operating, the annual catch of fish will be boosted from the present average of 390,000 metric tons to 620,000 tons, Kim said.

The land base for the fisheries and marine center, meanwhile, will be put under the control of the Government, and will be denationalized through gradual transfer to private business, Kim said. Further, the Government plans to form a fisheries and marine industry development committee, designed to help develop the industry. The shipbuilding materials to be imported under the agreement will build: 10 trawlers of 500 tons each and 20 of 300 tons each; 760 dragnet fishing boats of 100 tons each; 50 purse-seiners of 100 tons each; 57 line-fishing boats of 100 tons each; 3 whaling motherships of 1,500 tons each; 10 other whaling vessels of 200 tons each; 20 other vessels of 500 tons each and 20 of 150 tons each. (United States Embassy, Seoul, June 18, 1962.

Kuwait

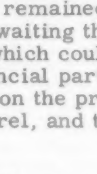
STATUS OF FISHING INDUSTRY:

While the Kuwait market continued in 1961 to be supplied with fish mainly by the traditional fishermen and fishing fleet, the modern commercial shrimp operation which was started in 1959 and prospered in 1960 continued to grow throughout 1961.

Of the two fishery companies formed at the end of 1960, the one with headquarters in Kuwait and Dubai remained more or less a paper company awaiting the proper international connection which could offer technial skills along with financial participation. That firm hopes to focus on the processing and packing of tuna, mackerel, and the production of fish meal and oil.

The other fishery company continued on shrimp fishing, freezing shrimp aboard the vessel, and transfer of the frozen shrimp to vessels going to the United States.

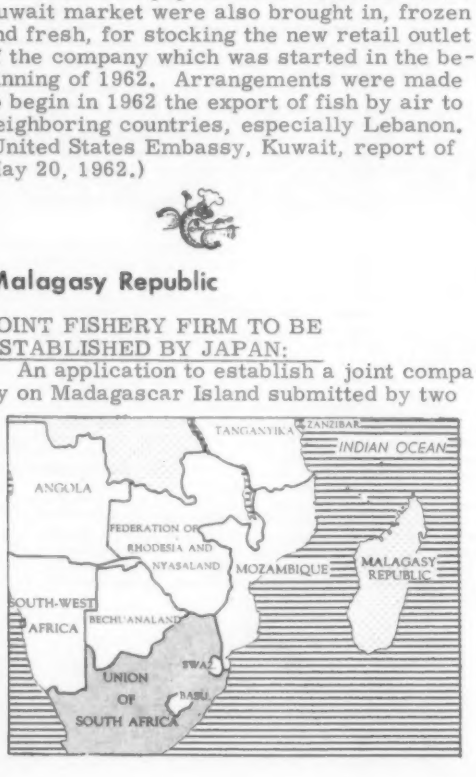
Some of the popular fish varieties on the Kuwait market were also brought in, frozen and fresh, for stocking the new retail outlet of the company which was started in the beginning of 1962. Arrangements were made to begin in 1962 the export of fish by air to neighboring countries, especially Lebanon. (United States Embassy, Kuwait, report of May 20, 1962.)



Malagasy Republic

JOINT FISHERY FIRM TO BE ESTABLISHED BY JAPAN:

An application to establish a joint company on Madagascar Island submitted by two Japanese firms (a trading company and a fisheries company) is reported to have been approved by the Japanese Overseas Investment Liaison Council. The joint company's main office will be located at Tananariva and its field offices at Majunga and Tamatave, where cold-storage facilities exist. Reportedly, the joint company will purchase shrimp, which it will freeze, and alligators (which it will process for their hides) from local sources. The frozen shrimp and hides will be exported to the Common Market nations, and the company hopes to export some hides to the United States. (Suisan Tsushin, July 2, 1962.)



Malaya

EX-VESSEL TUNA PRICES INCREASED:

The Japanese Overseas Fisheries Company which manages the joint Japanese-Malayan tuna fishing and canning company at Penang, Malaya, held a meeting on June 9 and announced the company's new tuna purchasing prices. The prices are up from 10 to 20 percent.

Ex-Vessel Tuna Prices in Malaya, June 1962

	Clipper-Frozen Fish				Iced Fish			
	New	Old	New	Old	New	Old	New	Old
	Yen/kg.		$/Short Ton		Yen/kg.		$/Short Ton	
Albacore	130	109	328	275	106	96	267	242
Yellowfin (gilled & gutted):								
20-100 lbs.	110	99	277	250	100	75	252	189
Over 100 lbs.	100	85	252	214	80	67	202	169
Indian bluefin	-	-	-	-	75	61	189	154

At the meeting, to which tuna fishermen from all parts of Japan were invited, the Overseas Fisheries Company stated that the new purchasing prices of the company were more than 20 percent higher than prices paid at other bases in the South Pacific Ocean. The company stressed the fact that fishing vessels delivering tuna to its Penang base averaged 25 days per trip, counting the days it took to unload catches, and strongly urged vessel owners to send ice-carrying tuna fishing vessels to Penang. (Suisan Tsushin, June 13, 1962.)

Mexico

SHRIMP FISHERY TRENDS, APRIL-JUNE 1962:

Mazatlan's shrimp industry in the Province of Sinaloa, Mexico, was in good shape during

Mexico (Contd.):

the second quarter of 1962. Boat owners, and the freezing and packing plants made money because of higher shrimp prices in the United States.

As a result of the very good season, plans have been made for the construction of 70 more shrimp trawlers which will cost from 500,000 to 600,000 pesos (US$40,000 to $48,000) each. The new trawlers are expected to be in operation during the 1963 shrimp fishing season. The closed season for shrimp fishing this year began on July 15 and will end on September 15. (Report from United States Consulate, Mazatlan, July 12, 1962.)

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SPINY LOBSTER CATCH IN BAJA CALIFORNIA, 1961/62 SEASON:

The catch of live spiny lobsters this season along the coast of Mexico's Baja California was good, reportedly exceeding last season's production by 11 percent, or 160,000 pounds. The legal season is October 1-March 15.

These are preliminary data from Banco Fomento Cooperativo and other sources in Ensenada, where the bulk of the Baja California lobster catch is landed. Excluded is the production of four fishing cooperatives in the Territory of Baja California which do not belong to the Federacion Regional de Sociedades Cooperativos de la Industria Pesquera in Ensenada; also a great quantity of lobsters, estimated in some circles to be as high as 30-40 percent of the total reported production, which was retailed directly by fishermen outside of the cooperatives. The Federacion consists of 11 fishing cooperatives with 880 registered lobster fishermen this past season, but all together there were perhaps 2,000 families engaged in the business.

A New York City importing firm through its Los Angeles representative contracted with the Federacion for the purchase of the entire lobster production in the State this season. The contract price was 69¼ U. S. cents a pound, but this appears to have been only for "medida" (young) lobsters. A price of 59¼ cents was paid for "burro" (old and large) lobsters, while "colas" (tails) brought $1.00 per pound. Outside the cooperatives fishermen were able to realize US$5 per dozen for small lobsters and $10 for the large ones in direct retail sales.

Legal production this season, represented by total sales to the New York City firm, amounted to 1,561,054 pounds; 78.8 percent "medida," 16.1 percent "burro," and 5.1 percent "colas." (United States Consulate, Tijuana, report of March 23, 1962.)

Morocco

SARDINE PACK TARGET FOR 1962/63 SEASON:

The pack targets for Morocco's 1962/63 season (began June 1, 1962) for sardines has been set at 2,450,000 cases. The previous season's target was 2,350,000, although actual

production was 2,550,000 cases. The carryover on May 31, 1962, was estimated at 400,000 cases. (United States Embassy, Rabat, report of June 1, 1962.)

Netherlands

FISHERY PRODUCTS INCLUDED IN RESTRICTED IMPORT LIST:

A number of fishery items are included in a list of products subject to possible quantitative import restrictions issued by the Netherlands Government. The intent of the list puts Dutch importers on notice that certain products may be restricted without further notice if foreign competition unduly harms domestic producers.

Fishery items subject to possible quantitative restrictions include: (1) fresh, chilled, or frozen eels; (2) fresh or frozen sea fish, livers, and fish roe, except smelt and sprat; (3) herring and livers, roe and fish meal, other than canned; (4) fresh, chilled, frozen, dried, salted, pickled, or boiled shrimp in the shell; and (5) cooked and peeled shrimp, including frozen, but not otherwise prepared.

Netherlands (Contd.):

Fishing nets were among certain industrial products removed from the restrictive import list. (Foreign Commerce Weekly, June 11, 1962.)

New Caledonia

JAPANESE-FRENCH TUNA BASE PLANNED:

A large Japanese fishing company (the same one that recently submitted an application to the Fisheries Agency to establish a large tuna base at French Tahiti together with a French and United States tuna packer) reportedly is planning to establish a joint Japanese-French tuna base at Noumea, New Caledonia Island. The Noumea tuna base will be similar in size to the tuna base contemplated for Tahiti.

Plans call for the construction of a 2,000-ton capacity cold-storage plant and the operation of 35-50 tuna vessels of less than 200 tons gross. During the first year of operation, 25 vessels would be based at Noumea and their annual catch is expected to total 12,000 metric tons. Fish landed at that base will be exported to France and the United States.

Poor quality fish unsuitable for export will be brought back to Japan. Of the two tuna bases (the one at Tahiti and the other at Noumea) which the Japanese firm hopes to establish, the Noumea base will be built first because of its favorable location. (Suisan Tsushin, June 6, 1962.)

Nicaragua

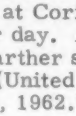
SHRIMP AND LOBSTER FISHING AT CORINTO:

At Corinto, on the Pacific Coast of Nicaragua, a fishery firm has been operating since September 1961. No annual catch figures for shrimp or lobsters are available. Monthly catches of shrimp were averaging 200,000 pounds earlier this year, but as of early June had dropped to half that amount. Spiny lobsters are caught, but not in large quantity, and on an irregular basis.

There are no clearly demarcated fishing grounds off Nicaragua's Pacific Coast. Shrimp are caught all along the coast. However, particularly good areas in the past have been off Corinto and Masachapa.

No estimates of the shrimp and lobster potential in the Corinto area are available. The Government is requesting experts from the Food and Agriculture Organization to make a survey of fish resources, but it is not known when this will be completed. In the meantime, no new fishing licenses are being granted.

As many as 25 vessels were fishing out of Corinto earlier this year, but owing to labor difficulties and the temporary disappearance of shrimp a number have gone to Guatemala. As of early June, 11 vessels were fishing for the fishery firm at Corinto. The firm is establishing a plant at Corinto with a capacity of 30,000 pounds per day. A second company is building a plant farther south on the coast at Puerto Somoza. (United States Embassy, Managua, June 15, 1962.)



Nigeria

JAPANESE PLAN TO ESTABLISH FISHING BASE:

A large Japanese fishing company, which has been working on a plan to establish a joint fishing base at Lagos, Nigeria, since October 1961, is reported to have the support of the Japanese Foreign Ministry, which wants to promote trade between Japan and Nigeria. Also, prospects of the firm obtaining a loan from the Economic Cooperative Fund, a government fund established in February 1960 to promote development of Japanese business enterprises in underdeveloped countries, are reported good.

For this joint venture, Japan is to contribute 30 percent of the investment and Nigeria 70 percent. The Japanese investment will be shared between the Japanese fishing firm and a steel import-export firm. For the present, the fishing firm's investment will include two two-boat trawlers (Akashi Maru Nos. 23 and 25) each of 75 gross tons, which the firm hopes to dispatch to Lagos as soon as final agreement is reached with Nigeria. Eventually, a total of six two-boat trawlers are scheduled to be assigned to that base, where, under

Nigeria (Contd.):

present agreement, a 500-ton capacity cold-storage plant is to be constructed.

To conclude final arrangements for the proposed joint venture, the Japanese fishing firm planned to send a representative to Nigeria toward the end of July. (Minato Shimbun, July 15, and Shin Suisan Shimbun Sokuho, July 7, 1962, and October 27, 1961.)

Norway

NEW MACHINE SORTS HERRING BY SIZE:
A machine which will separate herring according to the length of each fish is under development in Norway. Work on the prototype has been going on during the last two years, and the first tests took place in June 1962. The machine is expected to go into production soon. The price is likely to be about $2,800. It is designed for installation as a stationary land-based unit.

A machine which will feed the herring into the automatic sorter is also expected to be ready for testing soon. (Fish Trades Gazette, June 30, 1962.)

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SOVIET-NORWEGIAN FISHERIES AGREEMENT RATIFIED:
The Norwegian Parliament has sanctioned ratification of the fisheries agreement between Norway and the Soviet Union. Although the approval was unanimous, both Labor and opposition speakers voiced the opinion that the pact could have been much more advantageous for Norway.

The chairman of the Norwegian Fisheries Committee said the Committee unanimously urged ratification only as a means of assuring good relations between the two countries, which might lead to more effective regulations for protecting the young fish stock in the Barents Sea.

Norway's Foreign Minister declared that Soviet recognition of the new Norwegian fisheries zone was the main reason why the Government had urged that the pact be ratified. He also pointed out that both countries would have possibilities for suggesting revisions if fundamental changes should occur in fishing conditions.

The fisheries agreement, which extends to October 31, 1970, permits Soviet fishing vessels to operate in a 6 to 12 mile zone off the Norwegian coast. Norwegians may fish in Soviet territorial waters in the Varangerfjord between 6 and 12 miles, and also in an 8 to 12 mile zone off the Soviet coast. The privilege of fishing in the 8 to 12 mile zone will be granted as long as Soviet vessels are allowed to load and unload at a distance of 4 miles off Jan Mayen Island. (News of Norway, June 28, 1962.)

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WINTER HERRING CATCH AGAIN VERY LIGHT:
For the fifth consecutive year the traditionally rich Norwegian winter herring season was a virtual failure. The 1962 winter herring catch is expected to amount to 70,000 metric tons as compared to a 1-million-ton catch five years ago. Although the fishermen were prepared for a poor season and did not suffer the financial loss experienced in the immediately preceding years, the loss of the traditional substantial income from the export of herring, in its many forms, was again a blow to the Norwegian economy.

Long-term projections indicate that the present development in the herring fishery is part of a cycle and that the winter herring will continue to move farther north and reach the Norwegian coast in smaller numbers for some time to come.

The Norwegian Government is trying to encourage larger and more efficient fishing vessels and equipment in order to improve the annual fish catch. (United States Embassy, Oslo, report of June 12, 1962.)

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FISHERY TRENDS, FIRST QUARTER 1962:
Lofoten Cod Fishery: Participation in this fishery of North Norway (which in recent years has averaged about 9,000 fishermen as against up to 30,000 in a really good season of yore) is now down to a low of some 7,000 fishermen, manning 2,144 vessels.

Antarctic Whaling: Norway's seven expeditions this season produced 285,130 barrels of whale oil in the first 68 days of the 116-day season. This was 64 percent of the quantity which the same expeditions produced in the same number of days last season.

Norway (Contd.):

Fisheries Delegation to Nigeria: A Norwegian fisheries delegation in March 1962 left for Lagos, Nigeria, to study tuna fishing off West Africa as well as fish distribution and harbor conditions. (News of Norway, March 22, 1962.)

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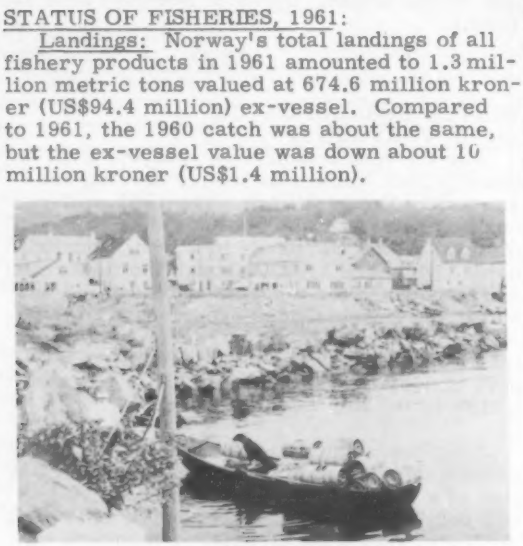
STATUS OF FISHERIES, 1961:

Landings: Norway's total landings of all fishery products in 1961 amounted to 1.3 million metric tons valued at 674.6 million kroner (US$94.4 million) ex-vessel. Compared to 1961, the 1960 catch was about the same, but the ex-vessel value was down about 10 million kroner (US$1.4 million).



Part-time fisherman in Norway casting off to check his lobster pots.

Unfavorable weather conditions to some extent accounted for the further drop of winter herring catches to 69,000 tons--less than one-fourth of the 1960 catch, and only about 6 percent of the 1956 record catch. On the other hand, the capelin fishery in Northern Norway was good--it started in the second half of February and lasted until mid-April. A total of 217,000 tons of capelin were landed in 1961 as compared with about 93,000 tons in 1960. The fat content of capelin proved to be unusually high, up to 12 percent as against the usual 4 to 6 percent. The fat herring fishery catch increased more than 70 percent, while the small herring fishery in the North Sea was more or less unsatisfactory, partly on account of unfavorable weather conditions.

Norway's cod fisheries improved in 1961 and cod production (including byproducts) reached a total of 252,100 tons. During the Finnmark cod fishery, 140 trawlers landed 33,700 tons out of a total of 77,400 tons. Some 1,800 other vessels participated in that fishery.

The general trend in the Norwegian fisheries is that the setback resulting from the failing winter herring fishery is being gradually overcome through intensified activities in other fisheries. Norway's fisheries for species other than winter herring have been showing steady progress for years, with the ex-vessel value increasing by more than 90 million kroner ($12.6 million) since 1958.

New stern trawlers built or being built in Norway and abroad for Norwegian owners are considered important stages in the development of the Norwegian fisheries.

Exports: The value of Norway's exports of fish and fish products in 1961 of 875 million kroner (US$122.5 million) was down about 5 percent as compared with that for 1960 of 925 million kroner ($129.5 million). Exports of fresh, frozen, and salted herring products were lower in 1961 because of the drop in winter herring catches. Also, klipfish and stockfish exports dropped considerably, with klipfish exports dropping from 30,000 tons in 1961 to 23,000 tons in 1960. Exports of herring meal and fish meal increased because of larger capelin and herring catches in Northern Norway, and successful herring fishing by Norwegian vessels in Icelandic waters.

Exports by the Association of Norwegian fish filleting plants (Norsk Frossenfisk A/L) have increased steadily, according to a statement by the Managing Director of the Association. The increase was from 28,000 tons in 1960 to 33,000 tons in 1961. The 1961 exports were valued at 115 million kroner ($16.1 million). A further increase to 40,000 tons is expected in 1962. Sales by the Association increased on the domestic market and all foreign markets. (Norwegian Fishing and Maritime News, No. 4, 1961.)

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FISHERMEN'S 1960 AVERAGE EARNINGS:

A statistical study in Norway of fishermen's earnings in 1960, covering about 6 percent of all Norwegian fishermen, showed an average annual income of Kr. 8,109 (US$1,134) per man. This was 3.7 percent more than in 1959. (News of Norway, April 5, 1962.)

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Norway (Contd.):

STERN TRAWLERS BEING BUILT FOR OFFSHORE FISHING:

A Norwegian cooperative company owned by fish filleting and freezing plants in Finmark and North Troms in June 1962 accepted delivery of the 984-gross-ton stern trawler Hans Egede, Norway's largest fishing vessel. The Kr. 7.3 million (US$1.0 million) craft, which has an over-all length of 220 feet, was built at Bremerhaven, Germany. In September 1962, the West German shipyard will deliver a sister vessel also to the same company.

Hans Egede is one of the seven ocean-going stern trawlers recommended for construction by a committee of the District Development Fund to provide fresh fish for North Norway freezing plants. Between 30 and 40 percent of the building cost will be financed by the Development Fund.

Construction of the 630-gross-ton Hekktind, owned by a firm at Melbu was also made possible through assistance from the Fund. The 151-foot long stern trawler was designed and built by a Bergen firm.

The shipyard at Aalesund will soon launch a specially designed stern trawler for delivery to the local fishing company. The 900-gross ton factory vessel will be able to operate for up to 4 months in distant waters before returning with some 400 tons of frozen fillets. (News of Norway, June 14, 1962.)

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STERN TRAWLER HAS DEVICE TO RECORD POSITION AND OPENING OF TRAWL NET:

The stern trawler Hekktind is the first fishing vessel in Norway to install a trawl "sonde," a device which together with the echo depth-sounder makes it possible to record the gear-bottom distance and controls the opening of the trawl. (News of Norway, April 5, 1962.)

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NATIONAL WHALE QUOTA FOR 1961/62 ANTARCTIC SEASON:

In October 1961, Norway established a national whale quota of 5,100 blue-whale units for the Norwegian expeditions participating in the 1961/62 Antarctic whaling season. The quota was 700 units less than the previous season, reflecting the number of units transferred to Japan with the sale of the Norwegian Kosmos III expedition. Seven Norwegian whaling factory vessels, using 71 whale catching boats, took part in the current season. (United States Embassy, Oslo, March 13, 1962.)

A catcher boat used by Norwegians during Antarctic whaling expedition.

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WHALE AND SPERM OIL PRODUCTION FOR 1962 IS DOWN:

The final results of the 7 Norwegian pelagic Antarctic whaling expeditions indicate a 15-percent decline in the output of whale and sperm oil in 1962. The Norwegian expeditions produced 498,717 barrels of whale oil and 19,587 barrels of sperm oil during the 117 days of this year's Antarctic whaling season. Production last season, which was 16 days shorter, was 590,752 barrels of whale oil and 67,511 barrels of sperm oil, if the output of Kosmos III fleet, which was sold to Japan, is discounted.

The drop in whale oil prices this year also contributed to reduced income from whaling, and added to the general pessimism as to the continued profitability of pelagic whaling. (United States Embassy, Oslo, report of June 12, 1962.)

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WHALE OIL PRICES LOWER IN 1962:

Norwegian whaling companies sold 41,000 long tons of their 1961/62 whale oil production by mid-year of 1962, leaving over 42,000 tons which were then still unsold. About mid-year, 24,000 tons were sold to the largest British buyer and user at £45 (about US$126) per long ton (about 5.6 U. S. cents a pound),

Norway (Contd.):

which was 30 percent below the 1961 price. (News of Norway, June 28, 1962.)

Peru

EXPORTS OF MARINE PRODUCTS, JANUARY-MARCH 1962:

Peruvian Exports of Principal Marine Products

Marine Products	January-March 1962		
	Quantity	Value1/	
	Metric Tons	Million Soles	US$ 1,000
Fish meal	343,430	844.8	31,499
Fish (frozen, canned, etc.)	7,843	55.7	2,077
Fish oil	40,796	107.1	3,993
Sperm oil	2,463	8.6	321
Fertilizer (guano)	4,019	10.8	403
Whale meal	1,054	1.7	63

1/F.o.b. values, converted at rate of 26.82 soles equal US$1.

Philippines

UNITED STATES FIRM SEEKS DANISH CUTTERS FOR PHILIPPINES:

A United States canning company of California has been negotiating with fishing vessel owners in Skagen, a Danish fishing port in North Jutland, Denmark, to participate in fishing operations in the Philippines. The company is seeking 4 Danish cutters of over 100 tons each, 3 to fish for sardines and 1 for shrimp. Later, the number of cutters may be increased to 18 with vessels of 50-60 tons being considered. Vessel charters would be for three years. Danish crews would be signed for a year, although it is hoped the skippers and engineers would remain for a three-year period. Provisions of a preliminary contract provide for payment of $12 per ton for fish, the cost of the trip to the Philippines and back, and the daily cost of ice and boxes.

Catches will be delivered first to a herring reduction plant and later to a canning plant which is being constructed by the United States firm in cooperation with the largest fisheries company in the Philippines. During the first year the vessels will carry full Danish crews. Thereafter, Philippine crew members will be carried and trained in the fisheries. The company's wish that the cutters sail under the flag of the Philippines and other contract provisions are still under discussion. (Fisheries Attache, United States Embassy, Copenhagen, July 4, 1962.)

Portugal

SELECTED FISHERY LANDINGS, 1961:

Portugal's 1961 sardine landings of 135,204 metric tons were up 2.4 percent from the previous year's 131,972 tons. But the ex-vessel value of the landings--403.9 million escudos (US$14.0 million)--dropped 12.5 percent from 1960. Except for 1958, the quantity of the sardine landings in 1960 was the highest in 10 years. Of the sardine landings, 74,461 tons were used for canning. The canners paid 235.3 million escudos (US$8.2 million) for that amount, or almost $110 a metric ton.

Landings of chinchards in 1961 totaled 41,867 tons, a 20-percent increase from the previous year's 35,143 tons. The anchovy landings of 9,498 tons in 1961 were more than double those in 1960 when 3,992 tons were landed.

Matosinhos ranked as Portugal's foremost sardine port in 1961 with 96,074 tons, an increase of 15 percent from the previous year. Peniche followed as the second largest sardine port with 13,588 tons, or 10 percent more than in 1960. But sardine landings of only 8,691 tons at Portimao were about 35 percent lower than in 1960.

Although Portugal's sardine landings and pack were at a record high, 1961 did not turn out to be as profitable as anticipated. Both the quantity and value of canned sardine exports were also at a record high in 1961. The lower profits to the canning industry in 1961 were partly attributed to unstable prices and some defects in selling policy.

Portugal's canned fish pack (in oil and in brine) in 1961 totaled 84,000 tons. (Conservas de Peixe, April 1962.)

Notes: (1) See Commercial Fisheries Review, May 1962, p. 67.
(2) Values converted at rate of 28.80 escudos equal US$1 in 1961.

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OUTLOOK FOR CANNED SARDINE MARKET IN 1962:

The Portuguese outlook for a successful 1962 canned sardine pack depends to a large extent on the availability of medium-size fish.

Portugal (Contd.):

This size fish is canned 6 to 8 fish to the ¼-club can, which is the type of pack preferred by Great Britain, Germany, and Belgium.

The Moroccan canned sardine industry has offered considerable competition to Portugal because of lower prices. Moroccan exports of canned sardines to Italy increased greatly in 1961. This has been viewed as a trend that might spread to other of Portugal's present markets, unless some action is taken to stem the tide. The danger, from the Portuguese point of view, is even greater because of its high production costs.

Other countries increasing their canned sardine production include Spain, which has in the past two years redoubled its efforts to place her surplus in foreign markets.

Portugal's frequent price fluctuations for canned fish are unfavorable to its export trade. When there is a drop in the rate of exchange, which occurs often, importers feel the full effects. This understandably cuts down buying of the Portuguese products and causes prospective buyers to turn to other countries with more stable prices.

More collaboration between Portugal's fishing and the canning segments of the industry is sought if their mutual economic interests are to improve. (Conservas de Peixe, April 1962.)

Note: See Commercial Fisheries Review, May 1962 p. 67.

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FROZEN FISHERY PRODUCTS EXPORTS, 1961:

Portugal's exports of frozen fishery products in 1961 amounted to 1,748 metric tons. Sardine with 657 tons was the largest single frozen fish species exported--more than one-third of the total frozen fish exports. Among other frozen fish and shellfish exported by Portugal were: tuna (23 tons), swordfish (13 tons), and spiny lobster (2 tons). (Conservas de Peixe, April 1962.)

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CANNED FISH PACK, JANUARY-MARCH 1962:

Portugal's total pack of canned fish in oil or sauce for the first quarter of 1962 was up 4.5 percent as compared with the same period in 1961. The sardine pack and the anchovy fillet pack combined accounted for 87 percent of the total pack, and those packs were about the same as the previous year. The canned tuna pack in the first quarter of 1962 was more than double that of the comparable period in 1961 and accounted for practically all of the increase.

Canners in the main producing areas were working at capacity during February-March, with the March pack of anchovy fillets (60,000 cases) exceeding the February pack by 17.6 percent. The total pack of all canned fish in oil or sauce during March 1962 was up 24 percent as compared with the previous month.

Portuguese Canned Fish Pack, January-March 1961-62

Products	Jan.-Mar. 1962		Jan.-Mar. 1961	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
In Oil or Sauce:				
Sardines	1,699	89	1,715	90
Chinchards	27	1	17	1
Mackerel	22	1	32	1
Tuna and tuna-like	428	14	178	6
Anchovy fillets	1,701	170	1,718	172
Others	29	1	78	4
Total	3,906	276	3,738	274

Landings of sardines started to fall off by the end of the first quarter, and prices for anchovy fillets were high. (Conservas de Peixe, May 1962.)

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CANNED FISH EXPORTS, JANUARY-MARCH 1962:

Portugal's exports of canned fish during the first quarter of 1962 dropped 8.6 percent from the same period in 1961. Sardines accounted for 81.3 percent of the 1962 exports of canned fish, followed by anchovy fillets with 11.1 percent. The sardine pack during the first 3 months of 1962 was down from the same period the previous year, but the mackerel pack was three times greater than in 1961.

Portuguese Canned Fish Exports, January-March 1961-62

Product	Jan.-Mar. 1962		Jan.-Mar. 1961	
	Metric Tons	1,000 Cases	Metric Tons	1,000 Cases
Sardines	12,226	643	13,753	723
Chinchards	310	16	277	14
Mackerel	290	12	95	4
Tuna and tuna-like	487	16	570	20
Anchovy fillets	1,664	166	1,685	169
Others	67	3	88	4
Total	15,044	856	16,468	934

Portugal's principal canned fish buyers during the first quarter of 1962 were Germany with 2,510 metric tons, followed by the United States with 2,058 tons; United Kingdom with 1,835 tons; France, 1,514 tons; and Italy, 1,437 tons. (Conservas de Peixe, May 1962.)

Seychelles

ESTABLISHMENT OF TUNA INDUSTRY UNDER STUDY:

The East African Standard of June 29, 1962, carried a brief article concerning the possible establishment of a tuna fishing industry in the Seychelles, a large group of islands in the Indian Ocean off the east coast of Africa.

Two representatives of a Geneva firm visited the Seychelles this summer to investigate the feasibility of setting up a base for deep-freezing for export of tuna and similar types of fish now caught by Chinese and Japanese fishing vessels. Since these vessels work farther afield than the local fishing boats, it is not expected that the use of the Chinese and Japanese catch would adversely affect the local Seychelles fishing industry.

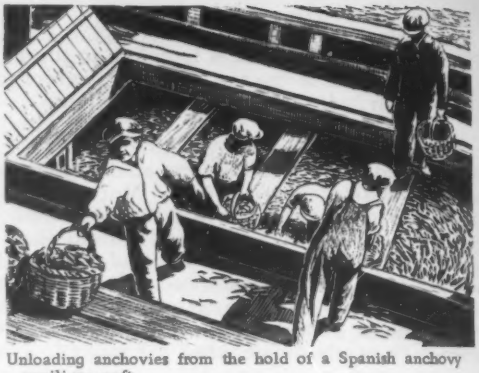
The company's representatives are said to envisage the construction of a 1,000-ton cold-storage plant and the operation of approximately 10 fishing vessels of the 100-ton class. Twenty percent of each vessel's crew will be Seychellois. As more are trained, it is expected that Seychellois eventually will take over the running of all the vessels. The company also feels that at a later date it might build a tuna cannery and finance the construction locally of tuna fishing vessels capable of operating within a range of 500 miles. (United States Consulate, Nairobi, report of July 3, 1962.)

Spain

BILBAO FISHERIES TRENDS, FIRST QUARTER, 1962:

Landings of anchovies in the Bilbao area of Spain were very good during the fishing season which opened March 19, 1962. Wholesale prices of these earlier than usual catches ranged from 8.50 pesetas a kilo (6.4 U. S. cents a pound) down to 3.00 pesetas a kilo (2.3 U. S. cents a pound). These were all sold for immediate consumption because the price was too high for the canners.

The Fishermen's Brotherhoods of Vizcaya, Guipuzcoa, and Santander, for the second consecutive year voluntarily agreed to limit anchovy catches, and to maintain minimum sale prices. The minimum price was fixed at 2.00 pesetas a kilo (1.5 U. S. cents a pound),



Unloading anchovies from the hold of a Spanish anchovy auxiliary craft.

or about 20 U. S. cents per 100 pounds more than in 1961. The daily maximum catch limit per vessel was fixed at 8 metric tons. Transfer of anchovy catches from one vessel to another while at sea was prohibited. Vessels were permitted to fish anchovies from 12:00 noon on Monday through 1:00 p.m. on Saturday.

Although representatives from Lugo Province were not present in Bilbao when the agreement was reached on February 17, 1962 (it entered into force on March 19, when the season officially started), it was reported they would support and accept the agreement. Oviedo's acceptance was taken for granted at the meeting. The Comisaria de Abastecimientos y Transportes promised to consider buying surplus fish at the minimum sale price for marketing in inland provinces.

Spain's tuna fishery in African waters was to end on March 31, but there were indications that the fishing fleet would remain longer, probably through April. The vessels were then to return to their home ports and prepare for the albacore and tuna fishing season in the waters of northern Spain. This would mean those fishing vessels will have adopted a cycle of fishing for tuna in African waters from December through April, and in northern Spain from May through November. The anchovy fishing season in Spanish waters would then be left to smaller vessels, and those which have not yet attempted sailing to Africa because of the higher operating costs involved.

The recent regulations concerning the law on the Renovation of the Fishing Fleet received mixed reactions. One opinion was that, at least up to now, the large proportion of

Spain (Contd.):

small fishing vessel operators is not enthusiastic about its application because they are afraid the large firms will get most of the benefits. Another opinion was that the small operator would be reluctant to scrap his old vessel since the construction of a new one involves a substantial investment which he cannot afford. Added to that is his belief that any request for credit would not be approved. Also, the rate of interest is high, and the terms for the refund of the loan too short. Other sources state they are prepared to renovate their fishing fleet even without government subsidies, and have ordered the construction of new vessels. Such vessel owners are encouraged and satisfied with the regulations under the law for governing the Renovation of the Fishing Fleet. It was even added that some shipowners would be satisfied with a subsidy of only 50 percent of the value to be repaid in 10 years at 4 percent interest. Further, these shipowners believe that the terms of the present law might encourage new vessel owners, who formerly were inactive, to join and give financial support to those already familiar with fishing operations.

Regardless of the views held, it appeared that the new law resulted in a temporary work slump in small shipyards. It also prompted some prospective vessel owners to have further construction halted so as to take advantage of any benefits under the new law.

A new fish-packing plant in Bilbao, and a cold-storage plant in Bermeo, Vizcaya, were placed in operation during the first quarter of 1962. These were planned as an improvement in local handling facilities. (United States Consulate, Bilbao, April 6, 1962.)

U.S.S.R.

FISHING IN NORTHWEST ATLANTIC SOUTH OF NOVA SCOTIA:

In 1962, the Soviets started commercial fishing in the International Commission for the Northwest Atlantic Fisheries (ICNAF) subarea 4, south of Nova Scotia between the Grand Banks and Georges Bank. Up to early June this year, a total of 15 Soviet vessels fished in that area and produced 7,000 metric tons of fish, mostly groundfish. In previous years, Soviet fishing in that area was limited to exploratory fishing. (Proceedings of Annual Meeting, ICNAF, Moscow, June 1962.)

* * * * *

NEW BALTIC FISHING PORT:

Construction was begun in mid-1962 on a large fishing port in the Baltic Republic of Estonia. The port, located at Tallinn on the Gulf of Finland, will accommodate the largest vessels in the Soviet fishing fleets. Included in the 175-acre facility will be cold-storage and canning plants. (Le Marin, newspaper, Rennes, France, June 8, 1962.)

* * * * *

FISHING INDUSTRY URGED TO PRODUCE MORE:

The Soviet Council of Ministers and the Communist Party Central Committee recently criticized the fishing industry's past performance and called for increased productivity. To meet this call and to fill the Soviet need for more food, crews will be trained in methods of fishing and processing catches on designated "demonstration" vessels.

In the Kamchatka area of the North Pacific, a fleet of several vessels has already been designated to demonstrate fishing for ocean perch, herring, and flounder. (Press reports and unpublished sources.)

* * * * *

OCEANOGRAPHIC RESEARCH IN INDIAN OCEAN:

The Vityaz of the Oceanology Institute, U. S. S. R. Academy of Sciences, left Vladivostok in late June 1962 for oceanographic research in the Eastern and Central Indian Ocean. The vessel, participating in the international study of the Indian Ocean, will make summer observations for comparison with data obtained in previous winter voyages.

Scientists from India, Indonesia, and Ceylon, and "four stipendiaries of the United Nations" will be aboard on the 150-day voyage. Also on board for short periods will be scientists from Australia, Japan, and Great Britian. (Unpublished sources.)

* * * * *

TALKS ON COOPERATION BETWEEN FISHING INDUSTRIES OF RUSSIA, POLAND, AND EAST GERMANY:

A Soviet fish industry delegation, headed by the State Committee on Fisheries Chair-

U. S. S. R. (Contd.):

man, left Moscow June 22, 1962, for Warsaw. According to Pravda (June 23), talks will be held with Poland and East Germany regarding an agreement on cooperation between the fishing industries of the three countries. (United States Embassy, Moscow, June 29, 1962.)

* * * * *

STUDIES ON PRESERVATION OF FISH, 1961:

During 1961, studies were carried out at the VNIRO (Soviet Institute for Fishery and Oceanography) and the NHRMP (Institute of Scientific Research for the Mechanization of the Fishing Industry) to establish a theory for the cold preservation of fish and to improve the techniques of chilling and freezing.

Heat and mass transfer methods were tried for freezing fish in air under different conditions (different temperatures, humidities, and air speeds). There were also organoleptic studies into biochemical and chemical-physical changes in fish tissue on cooling, freezing, and cold storage, and into their relationship with fish of a given quality. During the studies, special attention was devoted to the definition of the effect of the thawing method on the quality of the fish.

A study was made of the possible use of antibiotics for extending the storage life of chilled fish. Experimental work in this field was carried out to determine (1) the efficiency of ice when using chlortetracycline during the transport of fresh fish on board vessels; (2) the decomposition during subsequent use (cooking, baking, canning, smoking, and salting) of chlortetracycline penetration in the fish; other antibiotics that can be used for fish storage. (Bulletin de l' Institut International du Froid, Tome XLII, No. 2, 1962.)

United Kingdom

CANNED SALMON IMPORTS LOWER IN 1961:

The United Kingdom total canned salmon imports from all countries in 1961 amounted to 52.6 million pounds valued at US$42.8 million. This was a 27-percent drop in quantity and a 29-percent drop in value from the 72.1 million pounds valued at $60.1 million imported in 1960.

Canned salmon exports by the United States in 1961 amounted to 7.2 million pounds of which 3.9 million pounds went to the United Kingdom. In 1960, the United Kingdom received 8.3 million pounds of the 11.9 million pounds of canned salmon exported by the United States.

* * * * *

LIVE FRESH-WATER CRAYFISH IMPORTED FROM RUSSIA:

A London food importer in the first half of this year imported a shipment of live fresh-water crayfish from Russia. Better known as "ecrevisses," these shellfish, which have not been brought to England in many years, were distributed to the catering trade by an English food firm.

Among the first to receive supplies of the new arrivals were the Savoy Hotel, London, and a group of restaurants. The subsequent demand was so great that further quantities were ordered immediately.

The crayfish were caught in the lakes and rivers of White Russia near Vitebsk. They were then taken by motor trucks to the nearest airport, and flown to London in pressurized containers.

The shellfish seemed to be no worse for the experience, as all of the first consignment arrived alive. (Fish Trades Gazette, June 16, 1962.)

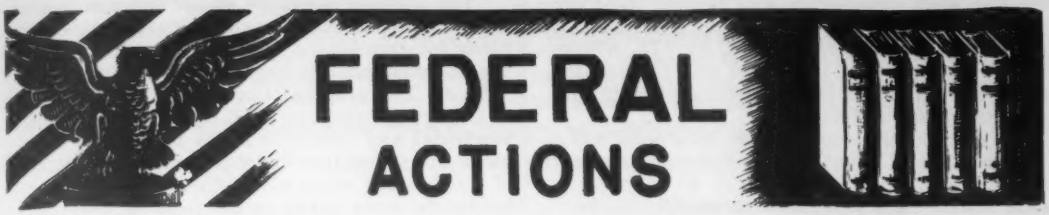
Venezuela

CANNED SARDINE ESTIMATED PACK FOR 1962:

The President of the Asociacion de Pescadores de Margarita, who is familiar with the canned sardine situation as a result of a recent trip to the United States, anticipates a Venezuelan canned sardine pack for calendar year 1962 of about 800,000 cases (100 cans per case, $3\frac{3}{4}$ ounces per can).

However, he states that the pack could be increased without undue difficulty to 1.5 to 2 million cases since the industry is operating only at 50 percent capacity. The major problems to boost production would be rapid procurement of sufficient oil and sheet metal and absolute guarantee of market by a reliable private or public organization.

Big catches of sardines off Venezuela began around mid-June. (United States Embassy, Caracas, report of June 12.)



Department of Health, Education and Welfare

FOOD AND DRUG ADMINISTRATION

MAJOR OVERHAUL PROPOSED OF SPECIAL DIETARY FOOD REGULATIONS:

A major overhaul of the Nation's special dietary food regulations was called for on June 20, 1962, by the U. S. Food and Drug Administration. The proposals aimed at changing these regulations were published in the June 20 Federal Register. Interested persons were invited to submit comments in writing within 60 days.

The regulations would cover vitamin, mineral and other dietary supplements, baby foods, foods for the elderly, low-sodium foods, low calorie and artificially sweetened foods, protein supplements, hypoallergenic foods, foods for use in dietary management of disease, and all other foods represented as having special dietary properties.

The objective of the regulations is to assure the public that special dietary foods are offered for what they actually are, with complete information to facilitate intelligent purchasing and use.

The proposed regulations are designed to provide the consumer with complete and reliable labeling information which will enable him to select and purchase special dietary foods of all kinds. This will help to eliminate false and misleading claims.

Following is a summary of the principal changes which would be made by the proposed regulations.

Foods Offered as Vitamin and Mineral Sources: Under the present regulations foods represented as sources of any of 6 specified vitamins and 4 minerals known to be needed in human nutrition must be labeled to show the proportion of the "minimum daily requirement" that is present. The term "minimum daily requirement" has been frequently misunderstood by consumers, and has encouraged some manufacturers to add needlessly large amounts of some vitamins and minerals. In the proposed regulations the term "daily requirement" is used in place of "minimum daily requirement."

Foods for Use in Reducing or Weight Control Diets: Such foods would be required to state the number of calories in a one-day supply or in one unit if the food is in wafers, tablets, capsules, etc. The amount in grams, of protein, fat and carbohydrates consumed in a one-day supply would also be stated.

Foods for reducing would be required to bear this prominent label declaration: "Useful only when used as a part of a calorie-controlled diet."

To be described as "non-fattening" a food could contain not more than 5 calories in a serving or 10 calories in a one-day supply.

To be described as "low calorie" a food could contain not more than 15 calories in a serving or 30 calories in a one-day supply.

To be described as "lower in calories" the lable would be required to state the name and caloric content of the food with which it is compared.

Protein Sources: Protein consumption in the United States is over 100 grams per person daily whereas the average adult needs only about 30 grams daily of the proteins supplied by the ordinary diet. The proposed regulations would require foods offered as sources of protein to be labeled in terms of their protein quality and quantity. Specifications that entitle a food to be described as "excellent" or "good" dietary sources of protein, are proposed. Foods which do not meet these specifications could not bear protein claims.

Low-Sodium Foods: Only minor changes are proposed in the existing regulations on labeling of those products. Medically insignificant amounts of sodium would not be required to be shown on the label of low-sodium food items.

Department of the Interior

INTERIOR MEMBERS APPOINTED TO COMMITTEE ON FISHING VESSEL CONSTRUCTION:

Six Department of the Interior officials to represent the Department on the joint Congressional-Interior Committee on Fishing Vessel Construction were appointed by the Secretary of the Interior. The names were announced on July 3, 1962. They are Donald L. McKernan, Director, Bureau of Commercial Fisheries; Harold E. Crowther, Assistant Director, Bureau of Commercial Fisheries (alternate); Charles H. Vaughn, Assistant Solicitor for Fish and Wildlife, Office of the Solicitor; Max N. Edwards, Legislative Counsel, Office of the Secretary; Thomas D. Rice, Special Assistant to the Commissioner for Fish and Wildlife; Ralph Curtiss, Resources Staff Officer (Legislation), Bureau of Commercial Fisheries; and C. E. Peterson, Chief, Branch of Loans and Grants, Bureau of Commercial Fisheries.

Congressional committee members, announced earlier, are August J. Bourbon of the staff of the Senate Committee on Commerce, and Capt. Paul Bauer, staff member of the House Merchant Marine and Fisheries Committee.

The joint committee will review the Fishing Vessel Construction Differential Subsidy Program, authorized by P.L. 86-516, which is due to expire in 1962, and will discuss the over-all problems in the fishing industry in efforts to find solutions.

The cost of constructing fishing vessels in certain foreign countries is 40 to 50 percent lower than in American shipyards, but Federal laws prohibit American fishermen from purchasing foreign-built vessels for use in domestic fisheries. The Fishing Vessel Construction Differential Subsidy Act authorizes the Secretary of the Interior to pay up to one-third the cost of building a new fishing vessel, provided certain requirements are met. To be eligible for a subsidy, a vessel must be designed to operate in a fishery which has received a finding of injury because of increased imports. The New England groundfish fishery is the only one now meeting this requirement.

The committee will discuss developments since the program has been in effect, operation of the program, need for expanding or modifying the vessel-construction program, and methods of providing assistance to the fishing industry through construction of new fishing vessels.

FISH AND WILDLIFE SERVICE

BUREAU OF COMMERCIAL FISHERIES

NEW PAY PLAN APPROVED FOR ALEUT RESIDENTS OF PRIBILOF ISLANDS IN ALASKA:

A new pay plan effective July 1, 1962, provides that all Aleut residents of the Pribilof Islands in Alaska employed under the Fish and Wildlife Service's Bureau of Commercial Fisheries Fur Seal Program will receive compensation determined in accordance with the pay structure of the Federal Civil Service, the U. S. Department of the Interior announced on June 25, 1962.

This determination of rates of compensation will be made under the provisions of the Classification Act of 1949, as amended, or under the Wage Board or Administrative Procedures established by the Department of the Interior. Special provisions are included for sealing crews whose pay rates will be established on the basis of wage board rates for laborers, plus the application of a percentage differential in recognition of the levels of work involved.

The former practice of partially subsidizing the cost of housing, food, fuel, and supplies for the Aleuts will be discontinued with the inception of the higher rates of compensation. The original Compensation Plan of 1949 and the revised plan of 1954 have been essential and effective steps in making possible the transition from the earlier economy of the Islands when all payments to the inhabitants were made in the form of Government-furnished housing, food, clothing, schooling, medical care, and the like, the Department said.

With the completion of this successful transition, resident Aleuts employed by the Bureau can be compensated in the future on the same basis and under the same laws, rules, regulations, and policies as other Department employees. The islands of St. Paul and St. George in the Pribilofs have about 600 residents. However, not all are employed by the Bureau.

* * * * *

PROSPECTUS ISSUED ON ALASKA FUR-SEAL PROCESSING:

An "Invitation for Proposals" and "Prospectus" for processing and selling Alaska seal skins for the account of the United States Government was issued on June 22, 1962, by the U.S. Department of the Interior.

The Bureau of Commercial Fisheries of the Department manages the fur-seal herd on the Pribilof Islands in the Bering Sea. The Bureau expects that there will be harvested each year some 90,000 surplus animals from which the fur known as Alaska fur seal is prepared. Under the terms of a treaty with Canada, Japan, and the U.S.S.R., 70 percent of the harvest is retained by the United States and 15 percent is delivered to each of the governments of Japan and Canada.

The Department of the Interior announced on November 30, 1961, that it had canceled its contract with Fouke Fur Company of St. Louis, Mo., for processing and selling Alaska seal skins. The "Invitation for Proposals" and "Prospectus" are being issued to acquaint all persons and firms interested in providing services for processing and/or selling U.S. Government Alaska seal skins with requirements and conditions under which such operations will be conducted. The deadline for submitting proposals is September 30, 1962.

Copies of the "Invitation for Proposals" and "Prospectus" may be obtained from the Director, Bureau of Commercial Fisheries, U.S. Department of the Interior, Washington, 25, D.C.

Note: See Commercial Fisheries Review, January 1962 p. 65.

Interstate Commerce Commission

CERTAIN FROZEN PREPARED FISHERY PRODUCTS INCLUDED IN FISHERY EXEMPTION FOR TRUCKS:

The status of certain frozen prepared fishery products (such as fish dinners, fish cakes, etc.) under the fishery exemption for trucks was decided on May 24, 1962, by Division I of the U. S. Interstate Commerce Commission, in W. W. Hughs "Grandfather" Application MC-105782 (Sub. No. 4). The language of the Transportation Act of 1958 left some doubt as to the status of prepared products such as fish dinners and fish cakes.

Fresh and frozen fishery products, cooked or uncooked, not hermetically sealed nor otherwise preserved are exempt from economic regulation, but when those products are moved in the same vehicle with regulated products, fishery products become regulated. Under the exemption, fishery products may be transported by a carrier without regard to rates published or the route specified by his certification of operation. In fact, the carrier need not have any operating rights granted by the I.C.C. The flexibility of service afforded by the exemption is important to the fishery industry for successful marketing of its products.

The examiner in his recommended report in the case cited concluded that fish specialities such as dinners and fish cakes were not exempt because of a mixture of regulated commodities such as frozen vegetables or ingredients that are not incidental to seasoning or binding. The Commission reversed the examiner's recommendation and commented that if "it was the intention of Congress that deviled crabs, deviled clams, deviled lobsters, codfish cakes, salmon croquettes, and similar fish or shellfish foods be exempted from economic regulation then that intention must prevail." Therefore, it might be said that a "basic ingredient principle" is established that if the basic ingredient is fish or shellfish, then the product is considered exempt. The test for fish mixed with other products such as fish dinners is: if "the fish dinners share a common initial wrapper or container, and retain the characteristics of a fish or seafood dinner in the ordinary and usual sense, the exemption applies."

The following is the discussion of the exemption in the decision:

THE FISH AND SHELLFISH EXEMPTION

A question has arisen with respect to the Bureau of Motor Carriers' administrative ruling No. 110, issued on September 26, 1958, shortly after passage of the Transportation Act of 1958. Administrative rulings are informal opinions intended to assist the Commission's field staff and the public in interpreting the various provisions of the Interstate Commerce Act and the rules and regulations promulgated thereunder, in the absence of definitive decisions. They are not binding on either the Commission or other persons. Monroe Common Carrier Application, 8 M.C.C. 183. Clark-Lease-Ronker, 36 M.C.C. 195. Ruling No. 110 interprets ruling No. 107 in the light of the amendments made to section 203 (b) (6) by section 7. When the amendments were made, ruling No. 107 was specifically incorporated, or codified, into the amended statute for the purpose of establishing the status of the commodities listed therein as exempt or nonexempt, with certain exceptions. The second proviso of the amended section establishes the status of a number of commodities not withstanding that ruling No. 107 might be to the contrary. Of particular importance here, the proviso states that the exemption afforded by the statute "shall be deemed to include cooked or uncooked (including breaded) fish or shell fish when frozen or fresh (but not including fish and shell fish which have been treated for preserving, such as canned, smoked, pickled, spiced, corned or kippered products)." To the extent that the list in ruling No. 107 differs from this language it must yield. Recognizing this, the Bureau re-examined this list and issued ruling No. 110 expressing an informal opinion that the following commodities must now be considered exempt from economic regulation: (1) dinners, seafood, frozen; (2) fish (including shell fish), breaded, cooked or uncooked, frozen or fresh; (3) cakes, codfish, cooked or uncooked, frozen or fresh; (4) clam juice or broth, cooked or uncooked, frozen or fresh; (5) croquettes, salmon, cooked or uncooked, frozen or fresh; (6) deviled crabs, clams, or lobsters, cooked or uncooked, frozen or fresh; (7) fish dinners, cooked or uncooked, frozen or fresh; (8) fried fish fillets, oysters, or scallops, frozen or fresh; and (9) fish sticks, cooked or uncooked, frozen or fresh. The opinion of the Bureau with respect to the status of fish sticks as an exempt commodity was confirmed in Phillips Common Carrier Application, 82 M.C.C. 528. It is true that many of the commodities listed in the ruling contain ingredients other than fish or shellfish, but if it was the intention of Congress that deviled crabs, deviled clams, deviled lobsters, codfish cakes, salmon croquettes, and similar fish or shellfish foods be exempted from economic regulation then that intention must prevail. The general effect of the last proviso is to broaden the exemption to embrace cooked as well as fresh fish and shellfish. The language used in the statute is broad, and cannot be said to be entirely clear, since it embraces a multitude of specific commodities. The language presently employed does not differ materially in form from that formerly employed. That the former language was not clear and unambiguous is amply reflected in the court and Commission decisions which construed the language. Interstate Commerce Com-

mission v. Love, supra, and the four decisions in Monark Egg Corp. Contract Carrier Application, 26 M.C.C. 615, 44 M.C.C. 15, 49 M.C.C. 693, and 52 M.C.C. 576. It will be helpful, therefore, to refer to the legislative history of the statute to ascertain the intent of Congress.1/ We are of the opinion that the legislative intent as it appears in the footnoted colloquy is in harmony with opinions shown in ruling No. 110. Seafood or fish dinners involve the packaging of ordinarily nonexempt commodities such as frozen french fried potatoes, french fried onions, cooked broccoli, and others in the same container with the chief course consisting of fish or shellfish. The main ingredient of a fish or seafood dinner is the fish course; the accompanying food items are complementary and secondary. Uppermost in the mind of the consumer is the fish or shellfish component. He regards the dinner, without respect to the accompanying vegetables, as a fish or seafood dinner, with emphasis on the particular fish course involved. The dinners are customarily packed in individual containers, and are entities within themselves, which is not true when the various food items making up the dinner are packed separately. As long as the fish dinners share a common initial wrapper or container, and retain the characteristics of a fish or seafood dinner in the ordinary and usual sense, the exemption applies, and the transporation of such dinners is exempt from economic regulation. The same item moving in separate packages in the same vehicle would come within the principle of Panther, supra, and the exemption would no longer apply. We conclude that the fish and shellfish commodities listed as exempt from economic regulation in ruling No. 110 are correctly so designated.

1/ See Colloquy, Senators Kennedy and Smathers, before Senate, reported in the Congressional Record for June 11, 1958 (p. 9744). "Codfish cakes, deviled crab, fish with sauce, fish dinners, and similar sea food products" are mentioned as falling within the exemption.

Department of Labor

WAGE AND HOUR AND PUBLIC CONTRACTS DIVISION

SPECIAL WAGE MINIMUMS FOR LEARNERS IN FISHERY PLANTS MAY BE POSSIBLE:

Labor Department Wage and Hour officials have indicated that they might grant requests for Learner Certificates in fishery or seafood plants. Such certificates would permit the employment of trainees at rates below the statutory minimum.

One of the requirements for learner certificates is that the occupation involved must "involve a sufficient degree of skill to necessitate an appreciable learning period." Adequate information from individual plants or groups would be necessary as to actual training periods and relative production of new and of experienced workers over a considerable period of time before a decision could be made as to whether the legal requirements are met. Another basic requirement for learner certificates is that such certificates are in fact necessary to prevent curtailment of employment opportunities.

Department of State

AGENCY FOR INTERNATIONAL DEVELOPMENT

"COOLEY LOANS" NOW AVAILABLE IN EIGHTEEN AFRICAN COUNTRIES:

Morocco and Sudan have been added to the list of African countries in which "Cooley funds" are available for lending to qualified United States firms, according to an announcement on July 12, 1962, by the Assistant Administrator for Development Finance and Private Enterprise in the Agency for International Development.

He said foreign currencies equivalent to $197.8 million are now available in 18 countries. They may be lent to United States businesses or their affiliates for development or expansion of foreign operations.

Named after Congressman Harold D. Cooley of North Carolina, who sponsored the pertinent amendment to Public Law 480 (Food for Peace), the loans are in local currencies received from sale of surplus United States agricultural products. Repayments also are in local currencies.

Loan applications may be made to the Private Enterprise Division, Agency for International Development, Washington 25, D. C., or to the U.S. AID Mission in countries involved, care of the U.S. Embassy.

AREA REDEVELOPMENT ADMINISTRATION

SHELLFISH INDUSTRY STUDY IN YORK COUNTY, MAINE, APPROVED:

The Area Redevelopment Administration (ARA) announced approval of a $44,000 contract with the State of Maine's Department of Sea and Shore Fisheries, for a study of the declining commercial shellfish industry in the waters off York County.

The project will cover several studies. A survey will be made of the number, growth rate, and mortality rate of commercial species of shellfish, including clams, oysters, quahogs and mussels. A pilot plant experimental operation will study methods

of pollution abatement and try to determine methods acceptable to the U. S. Public Health Service of purifying and salvaging some of the shellfish currently being rejected because of pollution in York County waters.

The shellfish industry of the area has declined about 46 percent in the last 15 years. Annual loss of income has been more than $1.25 million and industry employment in the area has dropped about 80 percent.

In addition to the ARA investment of $44,000, the State of Maine will contribute $29,646 to complete the project studies. The results of the pilot plant experimental operations will be made available to other commercial fishing areas experiencing serious pollution problems.

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United States Supreme Court

RULING AFFECTS FISHING CREWS UNEMPLOYMENT AND SOCIAL SECURITY TAX EXEMPTION:

On May 28, 1962, the United States Supreme Court commented on the factors involved in deciding whether fishermen are independent contractors or employees for Federal tax purposes. The point arose in the case of J. L. Enochs, District Director of Internal Revenue, vs. Williams Packing & Navigation Co., Inc., which was decided on procedural grounds.

Williams Packing Co. supplies trawlers to fishermen who take shrimp, oysters, and fish off the Gulf coast. In July 1959, Federal District Judge Sidney Mize permanently enjoined the collection of social security and unemployment taxes for the vessel captains and crewmen working the Williams Packing Co. trawlers during 1953-1955. The United States Court of Appeals for the Fifth Circuit affirmed the District Court decision on the ground that the taxes were not payable since the fishermen were independent contractors.

On appeal by the Government, the Supreme Court reversed the judgment of the Court of Appeals and remanded the case to the District Court with directions to dismiss the complaint. The Supreme Court ruled that the collection of Federal taxes may be enjoined only when it is clearly apparent at the time of suit that, under the most liberal view of the law and the facts, the United States cannot establish tax liability. The right to disputed tax sums in cases which do not meet this requirement must be determined in a suit for a refund. The Supreme Court held that it was not clearly evident that the fishermen on the vessels of the Williams Packing Company were independent contractors.

Note: See Commercial Fisheries Review, May 1962 p. 78, Sept. 1961 p. 114.

White House

FISHERY EXPORTS TO EL SALVADOR CONFRONTED WITH HIGHER DUTIES:

On July 2, 1962, the President proclaimed that tariff concessions under the May 1, 1937, bilateral trade agreement between El Salvador and the United States would end August

8, 1962. El Salvador had requested and obtained mutual termination of concessions affecting 27 commodities, including two fishery products. This step was necessary to El Salvador's participation in the Central American economic integration movement with Guatemala, Honduras, and Nicaragua.

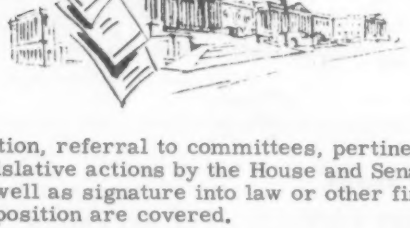
The El Salvador import duty rate on two fishery commodities, canned mackerel and canned salmon, will be increased from $5.00 per 100 gross kilograms and 6 percent ad valorem to $35.00 per 100 kilograms and 8 percent ad valorem. In recent years, El Salvador has consistently been an important foreign market for United States canned mackerel. In 1961, canned mackerel exports to El Salvador were valued at $151,000, canned salmon, $23,000.

It is expected that United States exports of canned mackerel and canned salmon to El Salvador may be adversely affected by the increase in the duty rates. Duties on canned sardines may also increase as the result of termination of concessions with other countries. United States trade in that product during 1961 was valued at $8,000.

Eighty-Seventh Congress

(Second Session)

Public bills and resolutions which may directly or indirectly affect the fisheries and allied industries are reported upon. Introduction, referral to committees, pertinent legislative actions by the House and Senate, as well as signature into law or other final disposition are covered.



AMERICAN SAMOA INCLUDED IN CERTAIN LAWS: The House on July 19, 1962, disagreed with the Senate amendment on H.R. 10062, to extend the application of certain laws to American Samoa, and asked for a conference with the Senate. Five conferees were appointed by the House.

The Senate on July 20, 1962, received a message from the House announcing its disagreement to the amendment of the Senate to H. R. 10062. Agreeing to a conference, the Senate appointed five conferees. Would make available to American Samoa the technical assistance, as needed, of the various Federal departments and agencies and to extend to American Samoa several Federal assistance programs presently available in other parts of the United States and its territories.

EXEMPT TRANSPORTATION OF AGRICULTURAL AND FISHERY PRODUCTS (H.R. 11583) and TRANSPORTATION ACT OF 1962 (H.R. 11584): The House Committee on Interstate and Foreign Commerce held a hearing on July 10, 1962, on H.R. 11583, to exempt certain carriers from minimum rate regulation in the transportation of bulk commodities, agricultural and fishery products, and passengers, and for other purposes; and H.R. 11584, to provide for strengthening and improving the national transportation system, and for other purposes. At the hearing, Commissioner Murphy reiterated the ICC's long standing position on the agricultural and fishery exemption. He asked that Congress take no action in extending the agricultural and fishery exemption to the railroads. Further, he requested a tightening of the exemption so as to limit it to farmers and fishermen transporting their products to local markets.

The purpose of the bills is to place water, rail, and motor carriers on an equal basis competitively. The bills propose that the motor carrier exemption for fresh and frozen fish be extended to the rail carriers, and also allow the rail and motor carriers the present water carrier bulk exemption. This would mean that fish meal in bulk could be carried by rail under rates exempt from prescribed minimums set by the ICC.

FISH HATCHERY (KENTUCKY): H.R. 12277 (Chelf), H.R. 12280 (Natcher), H.R. 12281 (Perkins), H.R. 12283 (Stubbefield), H.R. 12284 (Watts), and H.R. 12288 (Siler) introduced in the House on June 25, 1962, and H.R. 12626 (Spence) July 19, 1962, to provide for the establishment of a new trout fish hatchery on or near the Cumberland River in the eastern part of the State of Kentucky; all referred to the Committee on Merchant Marine and Fisheries. A companion bill S. 3471 (Cooper) was introduced in the Senate on June 25, 1962; referred to the Committee on Commerce.

GLOUCESTER HARBOR (MASS.) IMPROVEMENT: The Senate on July 13, 1962, introduced S. 3544 (Smith of Mass.), authorizing modification of the existing project for Gloucester Harbor, Mass.; referred to the Committee on Public Works.

The Senate Committee on Public Works, in executive session, on July 20, 1962, ordered favorably reported S. 3544. The Senate on July 23, 1962, received the report (S. Rept. No. 1777) from the Committee.

NATIONAL FISHERIES CENTER AND AQUARIUM: On July 6, 1962, the Senate Subcommittee on Public Buildings and Grounds ordered favorably reported to the full committee H.R. 8181, authorizing the Secretary of the Interior to construct a National Fisheries Center and Aquarium in the District of Columbia.

The Senate Committee on Public Works, in executive session, July 20, 1962, ordered favorably reported H.R. 8181 amended. The Senate on July 23, 1962, received the report (S. Rept. No. 1778) from the Committee.

National Fisheries Center and Aquarium (Hearing before a Subcommittee of the Committee on Public Works, United States Senate, 87th Congress, 2nd Ses-

sion), 59 pp., printed. Contains hearing held on June 15, 1962, on S. 2296 and H.R. 8181, bills to authorize construction of a National Fisheries Center and Aquarium in the District of Columbia. Contains statements and letters of Federal agencies, Congressmen, and interested people.

NAVAL OCEANOGRAPHIC OFFICE: The Senate Committee on Armed Services, June 28, 1962, in executive session, ordered favorably reported H.R. 8045, to change the name of the Hydrographic Office to United States Naval Oceanographic Office. The Senate, on the same date, received the report (S. Rept. No. 1667) from the Committee.

The Senate on June 29, 1962, passed H.R. 8045. Since the House had passed the bill August 15, 1961, the bill was sent to the President for signature.

The President on July 10, 1962, signed H.R. 8045 (P.L. 87-533).

Senate Report No. 1667, Changing the Name of the Hydrographic Office to the U. S. Naval Oceanographic Office. (June 28, 1962, a report from the Senate Committee on Armed Services, U. S. Senate, 87th Congress, 2nd Session, to accompany H.R. 8045), 4 pp., printed. The Committee reported favorably on the bill without amendment and recommended that the bill pass. Contains the purpose of the bill, background, fiscal data, departmental data, and changes in existing laws.

NETTING IMPORTS FOR RESEARCH: H.R. 12180 (Mills) introduced in the House on June 18, 1962, to extend for a temporary period the existing provisions of laws relating to the free importation of personal and household effects brought into the United States under Government orders; referred to the Committee on Ways and Means. The House on June 26, 1962, received the report (H. Rept. No. 1920) on H.R. 12180 from the Committee on Ways and Means. On June 29, 1962, the House passed the bill.

The Senate Committee on Finance on July 10, 1962, ordered favorably reported H.R. 12180 amended (so as to add the text of S. 1814, providing for the free importation of monofilament gill nets for use in fish sampling...). The Senate on July 11, 1962, received the report (S. Rept. No. 1720) from the Committee.

Senate Report No. 1720, Household Effects--Monofilament Gill Fish Nets--Accident and Health Insurance Contract Premiums (a report from the Committee on Finance, United States Senate, 87th Congress, 2nd Session, to accompany H.R. 12180). The Committee reported the bill favorably with amendments and recommended passage. The amendment would provide for the importation of monofilament gill nets for use in fish sampling. Also contained in the report is the purpose of the bill, general statement, explanation of the amendments, and changes in existing law.

OCEANOGRAPHIC PROGRAM: H.R. 12601 (Dingell) was introduced in the House on July 18, 1962, to provide for a comprehensive, long-range, and coordinated national program in oceanography, and for other purposes; referred to the Committee on Merchant Marine and Fisheries. The purpose of the bill is to develop and maintain a coordinated, comprehensive, and long-range national program in oceanography. In furtherance of this policy, the humanitarian and economic welfare of the United States and the national security require that adequate provision be made for continuing, systematic research, studies, and surveys of the ocean and its resources, and of the total marine environment. The program is to be implemented by both "in house" and contract research, through the balanced participation and cooperation of all qualified persons, organizations, institutions, agencies, or corporate entities, whether governmental, educational, nonprofit, or industrial. The Office of Science and Technology established by Reorganization Plan No. 2 of 1962 shall establish a national program of oceanography and shall issue a statement of national goals with respect to oceanography, which shall set forth methods for achieving those goals and the responsibility of the departments, agencies, and instrumentalities of the United States to carry out the national program on an integrated, coordinated basis. All interested departments, agencies, and instrumentalities of the United States, as well as capable nongovernmental institutions and industries where appropriate are to be consulted. It would establish in the Office the position of Assistant Director for Oceanography, to be appointed by the President, and by and with the advice and consent of the Senate. The Director of the Office is to appoint an Advisory Committee for Oceanography to consist of seven members, to review the national program of oceanography and revisions thereof and make recommendations.

OYSTER BROOD STOCK PURCHASES: The Merchant Marine and Fisheries Subcommittee of the Senate Committee on Commerce held hearings on H.R. 7336, to promote the production of oysters by propagation of disease-resistant strains and for other purposes. Testimony was heard from the Assistant Director, Bureau of Commercial Fisheries, and the legislative assistant to Senator Boggs. The hearings were adjourned subject to call on June 25, 1962.

On July 11, 1962, the Senate Committee on Commerce, ordered favorably reported as amended, H.R. 7336. House had passed the bill on April 3, 1962.

The Senate, on July 16, 1962, received the report, with amendment (S. Rept. No. 1736), from the Committee on Commerce on H.R. 7336.

Senate Report No. 1736, Rehabilitation of Oyster Beds (July 16, 1962, a report from the Senate Committee on Commerce, U. S. Senate, 87th Congress, 2nd Session to accompany H. R. 7336), 5 pp., printed. The Committee reported bill favorably with amendments and recommended passage. It contains the purpose of the bill (which is to restore the oyster industry in the Delaware and Chesapeake Bays, and to develop oyster stock that has resistance to the virus organism known as MSX that is spreading through the oyster beds); general information; amendments; and departmental reports. The bill as amended and passed by the House only contains authority to acquire and distribute brood stock, the States to pay one-third of the cost. The loan provisions were deleted at the request of the Department of the Interior, on the ground that such provisions were inadvisable at this time because there are very few disease-resistant strains now available commercially; the Senate amendments would reduce the amount authorized by the bill from $3 million to $100,000, with funds provided by the Federal Government to be matched by each state by 50 percent of the amount granted.

On July 18, 1962, the Senate passed with amendment and sent back to the House, H.R. 7336. The bill as amended by the Senate Committee on Commerce and as passed by the Senate provides that the Interior Secretary can make grants to the States referred to in the bill for assisting the states to finance research and other activities needed in the development and propagation

of disease-resistant strains of oysters. States are to match the grant in funds to at least 50 percent of the amount of the grant. Federal Government total appropriation for such grant is limited to $100,000.

OYSTER PLANTERS DISASTER LOANS: On July 9, 1962, the Senate Subcommittee on Agricultural Credit and Rural Electrification held hearings on H.R. 946. Testimony was received from various Federal agencies and industry.

Miscellaneous (Hearings Before the Committee on Agriculture, House of Representatives, 87th Congress, 2nd Session), 210 pp., printed. Contains, among others, the hearing held March 19, 1962, on H.R. 946 (pp. 171-185), to extend to oyster planters the benefits of the provisions of the present law which provide for production disaster loans for farmers and stockmen. Contains statements by Government officials.

PACIFIC MARINE FISHERIES COMMISSION: The House and the Senate on July 16, 1962, received a letter from the Chairman, Pacific Marine Fisheries Commission, Portland, Oreg., transmitting the 14th Annual Report of the Pacific Marine Fisheries Commission for the year 1961. The Report was referred to the Senate Committee on Commerce and the House Committee on Merchant Marine and Fisheries.

PACIFIC MARINE FISHERIES COMPACT: On July 11, 1962, the Senate Committee on Commerce, ordered favorably reported S. 3431, to consent to the amendment of the Pacific Marine Fisheries Compact and to the participation of certain additional States in such compact in accordance with the terms of such amendment. The change consists of an addition to the existing compact which provides in part: "The State of Alaska or Hawaii, or any State having rivers or streams tributary to the Pacific Ocean may become a contracting State by enactment of the Pacific Marine Fisheries Compact."

The Senate, July 16, 1962, received a favorable report (S. Rept. No. 1735) from the Committee on Commerce on S. 3431.

On July 18, 1962, the Senate passed without amendment and cleared for the House S. 3431. The House received the bill on July 19, 1962, and referred it to the Committee on Merchant Marine and Fisheries.

POTOMAC RIVER COMPACT (VA. & MD.) OF 1958: The House Committee on the Judiciary reported favorably to the House on July 17, 1962, H.J. Res. 659, granting consent of the Congress to a compact entered into between the State of Maryland and the Commonwealth of Virginia for the creation of the Potomac River Compact of 1958; without amendment (H. Rept. No. 1980); referred to the Committee of the Whole House on the State of the Union.

SCIENCE AND TECHNOLOGY COMMISSION: The Senate Committee on Government Operations July 24, 1962, concluded hearings on S. 2771, providing for the establishment of a Commission on Science and Technology. Testimony was given by various Federal agencies and interested people. The hearings were adjourned subject to call.

SCIENCE AND TECHNOLOGY OFFICE: The House on June 28, 1962, received a communication from the President (H. Doc. 462) transmitting a proposed supplemental appropriation for the fiscal year 1963 in the amount of $850,000 for the Office of Science and Technology; referred to the Committee on Appropriations.

SHELLFISH PROCESSING EXEMPTION FROM MINIMUM WAGE: H.R. 12541 (Henderson) introduced in the House on July 16, 1962, to amend the Fair Labor Standards Act of 1938 to exempt therefrom persons engaged in certain processing of shrimps, crabs, or oysters; referred to the Committee on Education and Labor. Similar to other bills previously introduced.

STATE DEPARTMENT APPROPRIATIONS FY 1963: Departments of State, Justice, and Commerce, the Judiciary, and Related Agencies Appropriations for 1963 (Hearings before a Subcommittee of the Committee on Appropriations, House of Representatives, 87th Congress, 2nd Session), 1,318 pp., printed. State Department appropriations include funds for the international fisheries commissions in the amount of $2,165,000, an increase of $255,000 over the 1962 appropriation of $1,910,000. Included are increases for nearly all commissions with the largest increases for the International Pacific Halibut Commission ($162,050) and International Pacific Salmon Fisheries Commission ($83,050). There was a decrease of $487 for the Great Lakes Fishery Commission. Other commissions included in the appropriations are: Inter-American Tropical Tuna Commission; International Commission for the Northwest Atlantic Fisheries; International Whaling Commission; International North Pacific Fisheries Commission; and North Pacific Fur Seal Commission. That part dealing with the Commissions, includes the statutory authorization, general statement, background statement, accomplishments by Commissions in fiscal year 1961, programs for fiscal years 1962 and 1963, explanation of the increases and basis for estimates for each Commission.

H.R. 12580 (Rooney) introduced in the House on July 17, 1962, making appropriations for the Department of State, Justice, and Commerce, the Judiciary, and related agencies for the fiscal year ending June 30, 1963. In the State Department appropriations are included funds for international fisheries commissions.

The House Committee on Appropriations July 17, 1962, reported (H. Rept. No. 1996) favorably to the House on H.R. 12580. Bill was referred to the Committee of the Whole House on the State of the Union.

House Report No. 1966, Departments of State, Justice, and Commerce, the Judiciary, and Related Agencies Appropriation Bill, Fiscal Year 1963 (July 17, 1962, a report from the Committee on Appropriations, House of Representatives, 87th Congress, 2nd Session, to accompany H.R. 12580), 43 pp., printed. The Committee reduced the budget request of $2,165,000 for international fisheries commissions to $1,910,000, the same as for fiscal year 1962.

The House on July 20, 1962, passed H.R. 12580 with amendment.

TARIFF CLASSIFICATION STUDY: The Senate on July 2, 1962, received a letter from the Chairman, United States Tariff Commission, transmitting, pursuant to law, a second supplemental report on tariff classification study, dated June 1962 (with an accompanying report); referred to the Committee on Finance. The House on the same day received a similar letter; referred to the Committee on Ways and Means.

TRADE EXPANSION ACT OF 1962: H.R. 12300 (Dent) and H.R. 12302 (Lennon) introduced in the House on June 26, 1962, to promote the general welfare, foreign policy, and security of the United States through international trade agreements and through adjustment assistance to domestic industry, agriculture, and labor,

and for other purposes; both referred to the Committee on Ways and Means. Similar to other bills previously introduced.

The Committee on Rules on June 26, 1962, introduced H. Res. 712 for consideration of H.R. 11970. The Committee on the same day reported (H. Rept. No. 1924) on H. Res. 712, for consideration of H.R. 11970, a bill to promote the general welfare, foreign policy, and security of the United States through international trade agreements and through adjustment assistance to domestic industry, agriculture and labor, and for other purposes; without amendment. The resolution provides that all points of order against H.R. 11970 are waived; after general debate, confined to the bill and not to exceed 8 hours, the bill shall be considered as having been read for amendment; amendments can be offered only by direction of Committee on Ways and Means and are not subject to amendment; and only one motion to recommit will be allowed.

The House on June 27, 1962, by voice vote, adopted H. Res. 712, for consideration of H.R. 11970. House resolved itself into the Committee of the Whole House on the State of the Union to consider H.R. 11970.

The House on June 28, 1962, passed H.R. 11970, the Trade Expansion Act of 1962, with committee amendments.

As the House-approved bill goes to the Senate, it authorizes the President to cut tariffs in groups by 50 percent over a 5-year period; to reduce to zero tariffs on items in which the Common Market and United States trade represent 80 percent of world trade, also over a 5-year period; and to eliminate all duties on items presently bearing a duty of 5 percent or less, also over a 5-year period. The bill contains a provision that would allow the President to eliminate all duties over a 5-year period on items presently dutiable at the rate of 5 percent or less. Most fishery duties are on a cents-per-pound basis, but when converted to a percentage ad valorem basis, a number of items presently bear an equivalent duty of 5 percent or less. On these items, the President in reciprocal negotiations could do away with all duties over a 5-year period.

H.R. 11970, House-passed bill, was read twice in the Senate by its title and referred to the Committee on Finance.

TUNA CONVENTION ACT OF 1950 AMENDMENT: On July 11, 1962, the Senate Committee on Commerce, ordered favorably reported S. 2568, to amend the act of September 7, 1950, to extend the regulatory authority of the Federal and State agencies concerned under the terms of the Convention for the establishment of an Inter-American Tropical Tuna Commission, signed at Washington, May 31, 1949, and for other purposes. The Senate Committee on Commerce reported (S. Rept. No. 1737) to the Senate on July 16, 1962, on S. 2568 with amendments.

Senate Report No. 1737 Conservation of Tropical Tuna (July 16, 1962, a report from the Senate Committee on Commerce, U. S. Senate, 87th Congress, 2nd Session, to accompany S. 2568), 18 pp., printed. The Committee favorably reported the bill with amendment and recommended passage. The Committee amendment inserts a clean bill which is based upon an agreement reached at a series of conferences between the affected agencies of the Government and the major elements of the American tuna industry. It contains the purpose of the legislation, a general discussion, cost, a section-by-section analysis, agency comments, and changes in existing law. The purpose of the bill is to provide for the issuance and enforcement of Federal regulations in order to carry out recommendations of the Inter-American Tropical Tuna Commission for the conservation of tuna resources in the eastern Pacific when the recommendations are concurred in by the United States. In order to achieve this purpose, the bill would authorize the Secretary of the Interior to issue appropriate regulations after following certain procedural steps. Under the bill, the regulations would not be applied to vessels and persons under the jurisdiction of the United States until an agreed date for the application of comparable measures by all other countries whose vessels fish for tuna in the regulatory area on a meaningful scale, and the regulations could be suspended if foreign fishing operations in the area were to threaten the conservation objectives of the Commission. In addition, the bill would require the simultaneous imposition of regulations prohibiting the entry into the United States of tuna subject to regulation which were caught under conditions that would defeat the effectiveness of the conservation recommendations of the Tropical Tuna Commission. Would make it unlawful to fish in violation of the regulations or to deal in fish which were caught in violation of such regulations, and it would provide penalties for such acts.

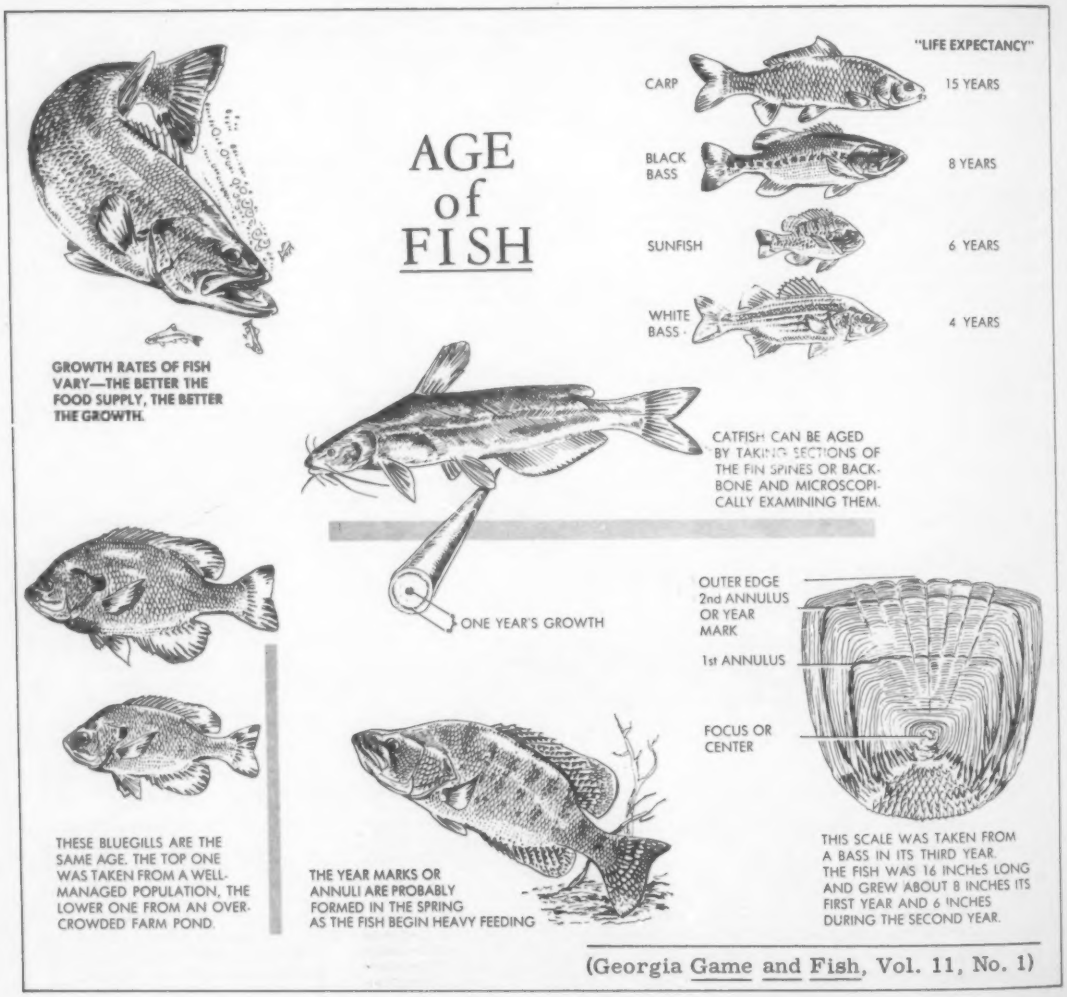
On July 18, 1962, the Senate passed with amendment and cleared for the House S. 2568. Received by the House on July 19, 1962, and referred to the Committee on Foreign Affairs.

VESSEL COLLISION LIABILITY: Senate Report No. 1603, Unifying Apportionment of Liability in Collisions and Other Maritime Casualties (Report from the Senate Committee on Commerce, United States Senate, 87th Congress, 2nd Session, to accompany S. 2313, to unify apportionment of liability in cases of collision between vessels, and related casualties), 20 pp., printed. Committee reported the bill favorably with amendment and recommended passage. Contains purpose of the bill; section-by-section explanation; changes in existing law; and reports from Federal agencies. The Committee amendment inserts a new bill, which is a redraft and a refinement of S. 2313 as introduced. The title as amended reads "a bill to unify apportionment of liability in cases of collision between vessels, and in other maritime casualties." Would make United States admiralty and maritime law uniform with the laws of other major maritime powers. (1) In a collision where both vessels are to blame, liability for the damages would be divided between the vessels according to their respective degree of fault, as determined by the court; (2) would alter the rights of cargo damaged in a collision or other maritime casualty, but does not materially change present law on death or personal injury claims (vessels at fault in collisions or other casualties would remain jointly as well as severally liable to personal injury and death claimants; (3) would establish a two-year statute of limitations governing suits arising of collisions and other maritime casualties, and a one-year statute of limitation to apply to suits for contribution with respect to death or personal injury.

VESSEL OWNERS LIABILITY: Senate Report No. 1602, Limiting the Liability of Shipowners (Report from the Senate Committee on Commerce, United States Senate, 87th Congress, 2nd Session, to accompany S. 2314, to limit the liability of shipowners and for other purposes), 28 pp., printed. Committee reported the bill favorably with amendment and recommended passage. Contains the purpose of the bill; background of the bill; a section-by-section discussion; changes in existing

law; and reports from Federal agencies. The Committee amendment inserts a new bill, which is a redraft and a refinement of S. 2314 as introduced. Includes all seagoing and inland waters vessels, including fishing vessels, or their tenders. Would repeal present Limitation of Liability Act and substitute a new act: (1) to afford shipowners the right of limitation of liability, under certain circumstances, to a fixed amount based on the tonnage of the vessel, and (2) to bring the system of liability limitation in the United States uniform with that of other major maritime nations.

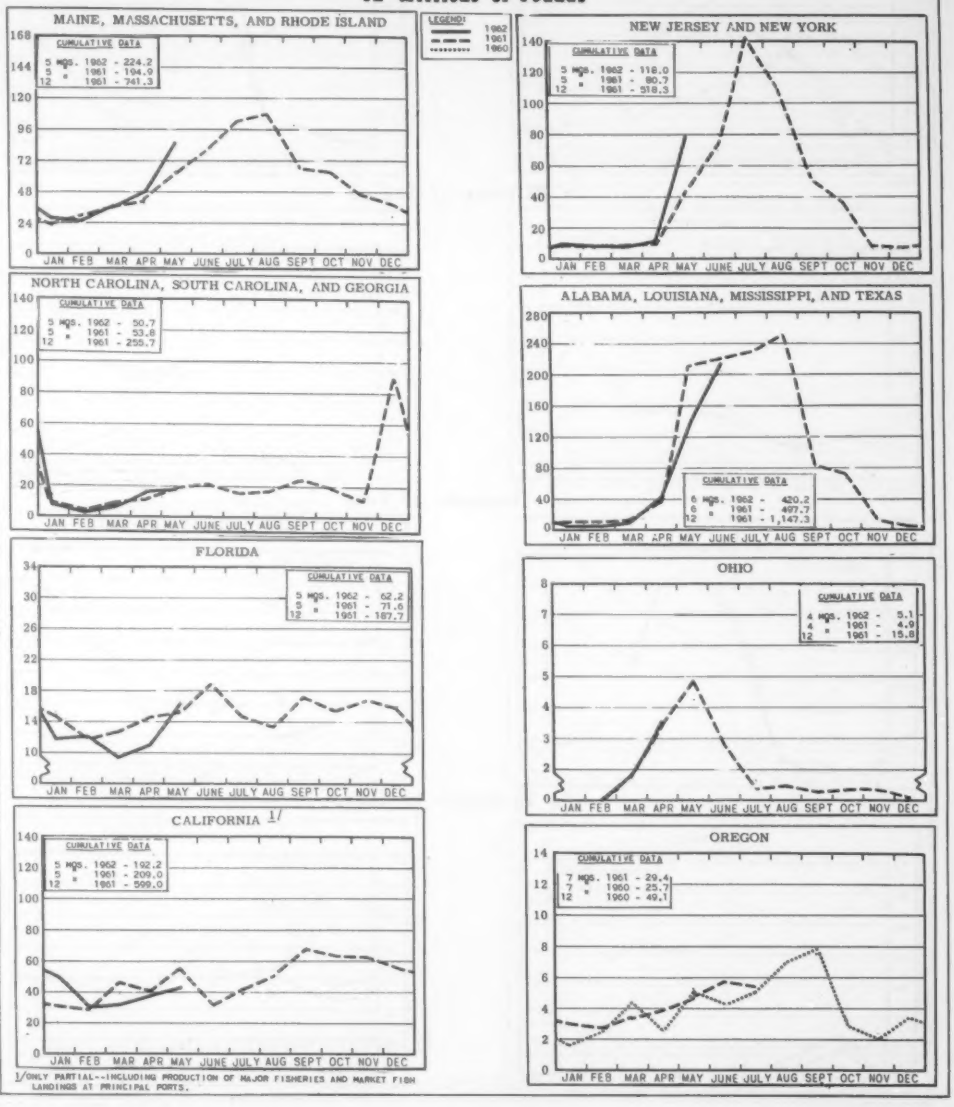
WATER POLLUTION CONTROL ADMINISTRATION: H.R. 12320 (Elliott) introduced in House June 27, 1962, to amend the Federal Water Pollution Control Act by creating a Federal Water Pollution Control Administration and for other purposes; referred to the Committee on Public Works. Similar to other bills previously introduced.


AGE of FISH
"LIFE EXPECTANCY"
CARP
15 YEARS
BLACK BASS
8 YEARS
SUNFISH
6 YEARS
WHITE BASS
4 YEARS
GROWTH RATES OF FISH VARY—THE BETTER THE FOOD SUPPLY, THE BETTER THE GROWTH.
CATFISH CAN BE AGED BY TAKING SECTIONS OF THE FIN SPINES OR BACKBONE AND MICROSCOPICALLY EXAMINING THEM.
ONE YEAR'S GROWTH
OUTER EDGE 2nd ANNULUS OR YEAR MARK
1st ANNULUS
FOCUS OR CENTER
THESE BLUEGILLS ARE THE SAME AGE. THE TOP ONE WAS TAKEN FROM A WELL-MANAGED POPULATION, THE LOWER ONE FROM AN OVERCROWDED FARM POND.
THE YEAR MARKS OR ANNULI ARE PROBABLY FORMED IN THE SPRING AS THE FISH BEGIN HEAVY FEEDING
THIS SCALE WAS TAKEN FROM A BASS IN ITS THIRD YEAR. THE FISH WAS 16 INCHES LONG AND GREW ABOUT 8 INCHES ITS FIRST YEAR AND 6 INCHES DURING THE SECOND YEAR.

(Georgia Game and Fish, Vol. 11, No. 1)

CHART 1 - FISHERY LANDINGS for SELECTED STATES

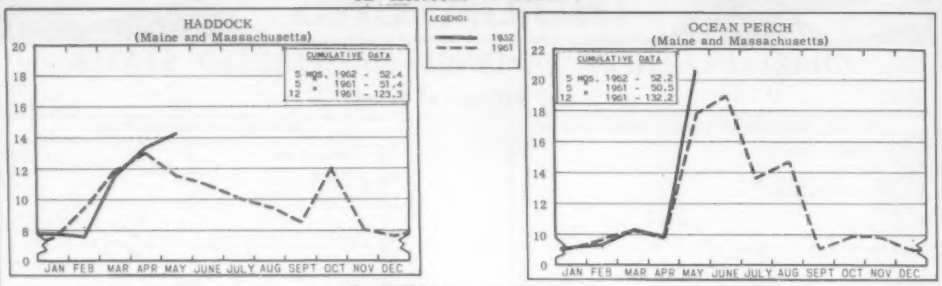
In Millions of Pounds


MAINE, MASSACHUSETTS, AND RHODE ISLAND
CUMULATIVE DATA
5 MOS. 1962 - 224.2
5 " 1961 - 194.9
12 " 1961 - 741.3
LEGEND: 1962 1961 1960
NEW JERSEY AND NEW YORK
CUMULATIVE DATA
5 MOS. 1962 - 118.0
5 " 1961 - 80.7
12 " 1961 - 518.3
NORTH CAROLINA, SOUTH CAROLINA, AND GEORGIA
CUMULATIVE DATA
5 MOS. 1962 - 50.7
5 " 1961 - 53.8
12 " 1961 - 259.7
ALABAMA, LOUISIANA, MISSISSIPPI, AND TEXAS
CUMULATIVE DATA
6 MOS. 1962 - 420.2
6 " 1961 - 497.7
12 " 1961 - 1,147.3
FLORIDA
CUMULATIVE DATA
5 MOS. 1962 - 62.2
5 " 1961 - 71.6
12 " 1961 - 187.7
OHIO
CUMULATIVE DATA
4 MOS. 1962 - 5.1
4 " 1961 - 4.9
12 " 1961 - 15.8
CALIFORNIA 1/
CUMULATIVE DATA
5 MOS. 1962 - 192.2
5 " 1961 - 209.0
12 " 1961 - 599.0
OREGON
CUMULATIVE DATA
7 MOS. 1961 - 29.4
7 " 1960 - 25.7
12 " 1960 - 49.1
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

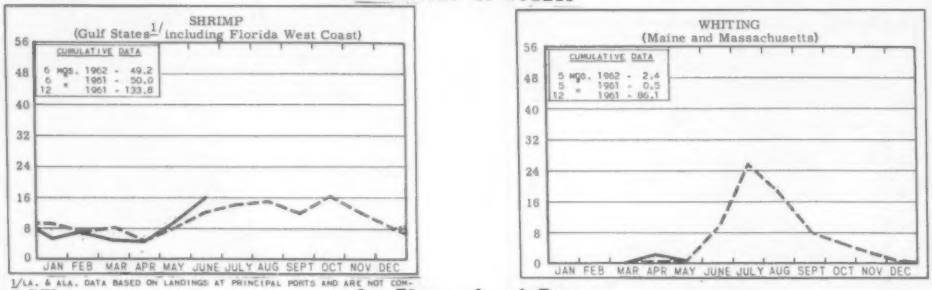
1/ONLY PARTIAL--INCLUDING PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

CHART 2 - LANDINGS for SELECTED FISHERIES

In Millions of Pounds

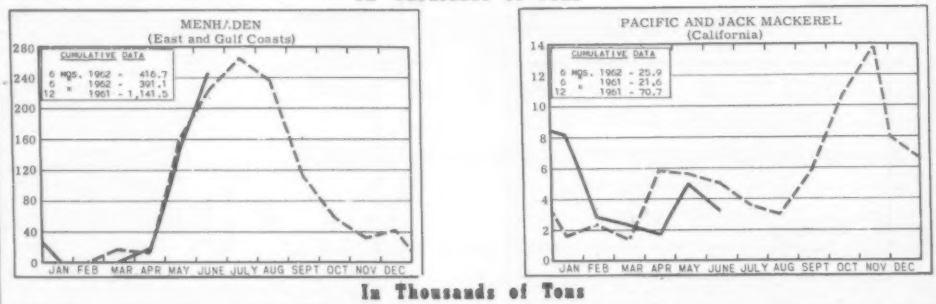

HADDOCK
(Maine and Massachusetts)
CUMULATIVE DATA
5 MOS. 1962 - 52.4
5 " 1961 - 51.4
12 " 1961 - 123.3
LEGEND:
1962
1961
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
OCEAN PERCH
(Maine and Massachusetts)
CUMULATIVE DATA
5 MOS. 1962 - 52.2
5 " 1961 - 50.5
12 " 1961 - 132.2
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

In Millions of Pounds


SHRIMP
(Gulf States 1/ including Florida West Coast)
CUMULATIVE DATA
6 MOS. 1962 - 49.2
6 " 1961 - 50.0
12 " 1961 - 133.8
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
WHITING
(Maine and Massachusetts)
CUMULATIVE DATA
5 MOS. 1962 - 2.4
5 " 1961 - 0.5
12 " 1961 - 86.1
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

In Thousands of Tons


MENHADEN
(East and Gulf Coasts)
CUMULATIVE DATA
6 MOS. 1962 - 416.7
6 " 1962 - 391.1
12 " 1961 - 1,141.5
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
PACIFIC AND JACK MACKEREL
(California)
CUMULATIVE DATA
6 MOS. 1962 - 25.9
6 " 1961 - 21.6
12 " 1961 - 70.7
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

In Thousands of Tons

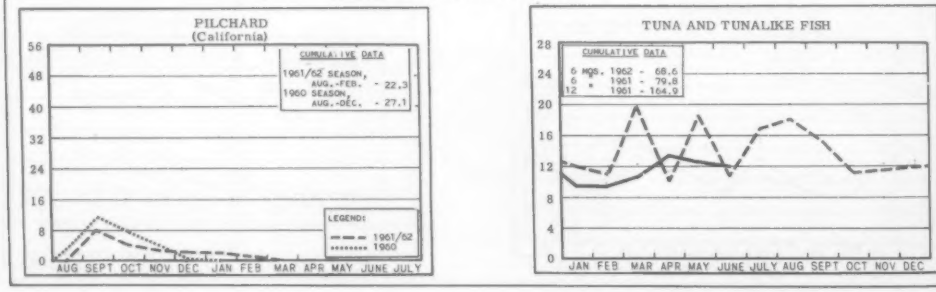
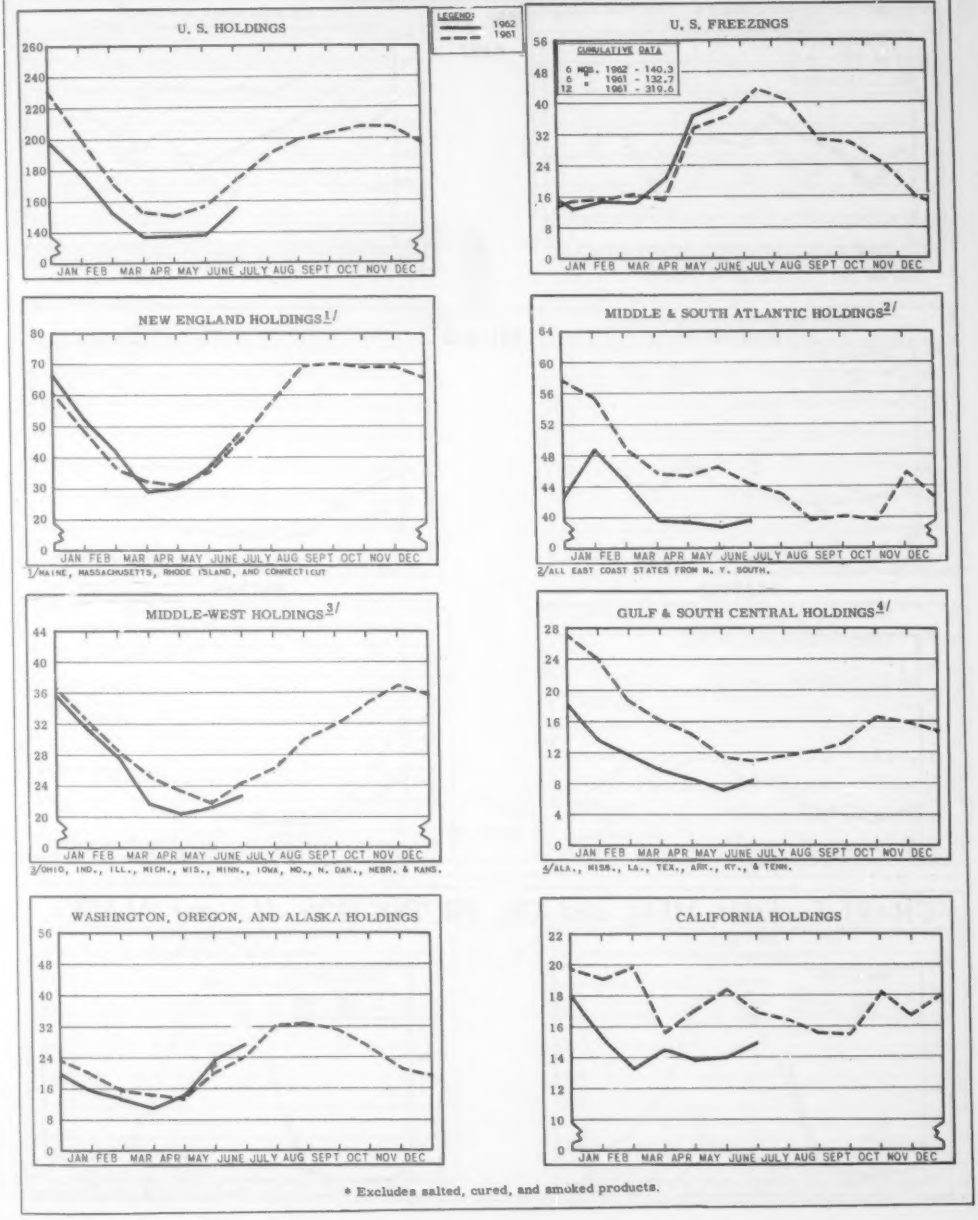

PILCHARD
(California)
CUMULATIVE DATA
1961/62 SEASON, AUG.-FEB. - 22.3
1960 SEASON, AUG.-DEC. - 27.1
LEGEND:
1961/62
1960
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY
TUNA AND TUNALIKE FISH
CUMULATIVE DATA
6 MOS. 1962 - 68.6
6 " 1961 - 79.8
12 " 1961 - 164.9
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

In Millions of Pounds


U. S. HOLDINGS
LEGEND: 1962 1961
U. S. FREEZINGS
CUMULATIVE DATA
6 MOS. 1962 - 140.3
6 " 1961 - 132.7
12 " 1961 - 319.6
NEW ENGLAND HOLDINGS 1/
MIDDLE & SOUTH ATLANTIC HOLDINGS 2/
MIDDLE-WEST HOLDINGS 3/
GULF & SOUTH CENTRAL HOLDINGS 4/
WASHINGTON, OREGON, AND ALASKA HOLDINGS
CALIFORNIA HOLDINGS
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/MAINE, MASSACHUSETTS, RHODE ISLAND, AND CONNECTICUT

2/ALL EAST COAST STATES FROM N. Y. SOUTH.

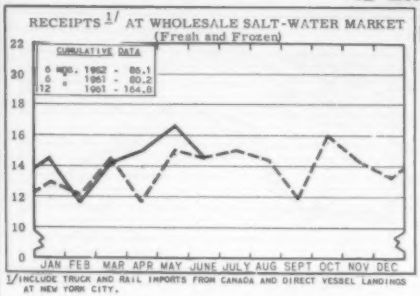
3/OHIO, IND., ILL., MICH., WIS., MINN., IOWA, MO., N. DAK., NEBR. & KANS.

4/ALA., MISS., LA., TEX., ARK., KY., & TENN.

* Excludes salted, cured, and smoked products.

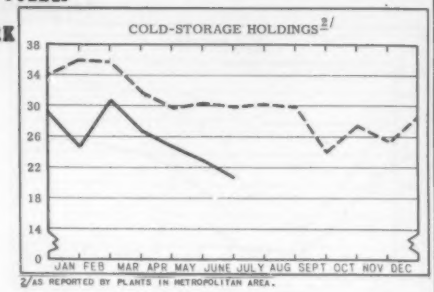
CHART 4 - RECEIPTS and COLD-STORAGE HOLDINGS of FISHERY PRODUCTS at PRINCIPAL DISTRIBUTION CENTERS

In Millions of Pounds

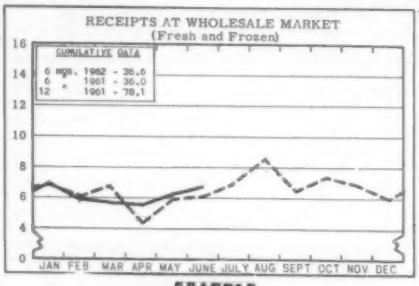

RECEIPTS 1/ AT WHOLESALE SALT-WATER MARKET
(Fresh and Frozen)
CUMULATIVE DATA
6 MOS. 1962 - 86.1
6 " 1961 - 80.2
12 " 1961 - 164.8
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/INCLUDE TRUCK AND RAIL IMPORTS FROM CANADA AND DIRECT VESSEL LANDINGS AT NEW YORK CITY.

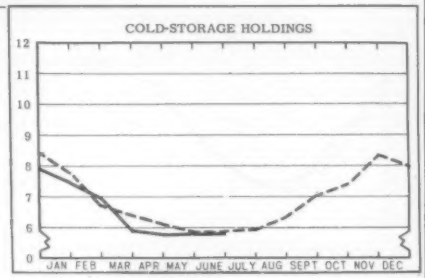
NEW YORK CITY



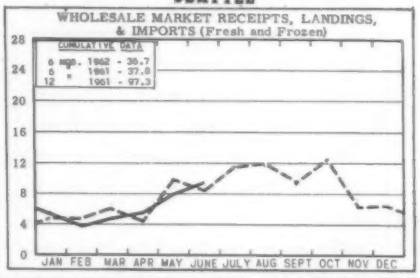
2/AS REPORTED BY PLANTS IN METROPOLITAN AREA.


RECEIPTS AT WHOLESALE MARKET
(Fresh and Frozen)
CUMULATIVE DATA
6 MOS. 1962 - 36.6
6 " 1961 - 36.0
12 " 1961 - 78.1
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHICAGO



SEATTLE


WHOLESALE MARKET RECEIPTS, LANDINGS,
& IMPORTS (Fresh and Frozen)
CUMULATIVE DATA
6 MOS. 1962 - 36.7
6 " 1961 - 37.8
12 " 1961 - 97.3
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

BOSTON

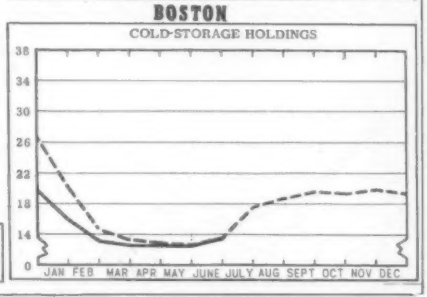
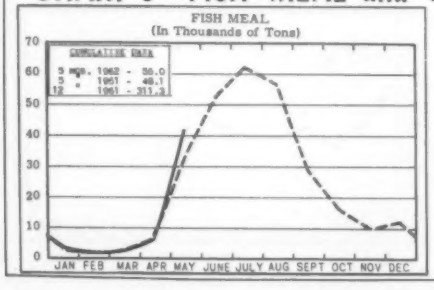


CHART 5 - FISH MEAL and OIL PRODUCTION - U.S and ALASKA


FISH MEAL
(In Thousands of Tons)
CUMULATIVE DATA
5 MOS. 1962 - 36.0
5 " 1961 - 48.1
12 " 1961 - 311.3
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

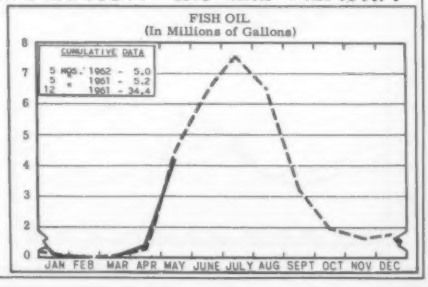
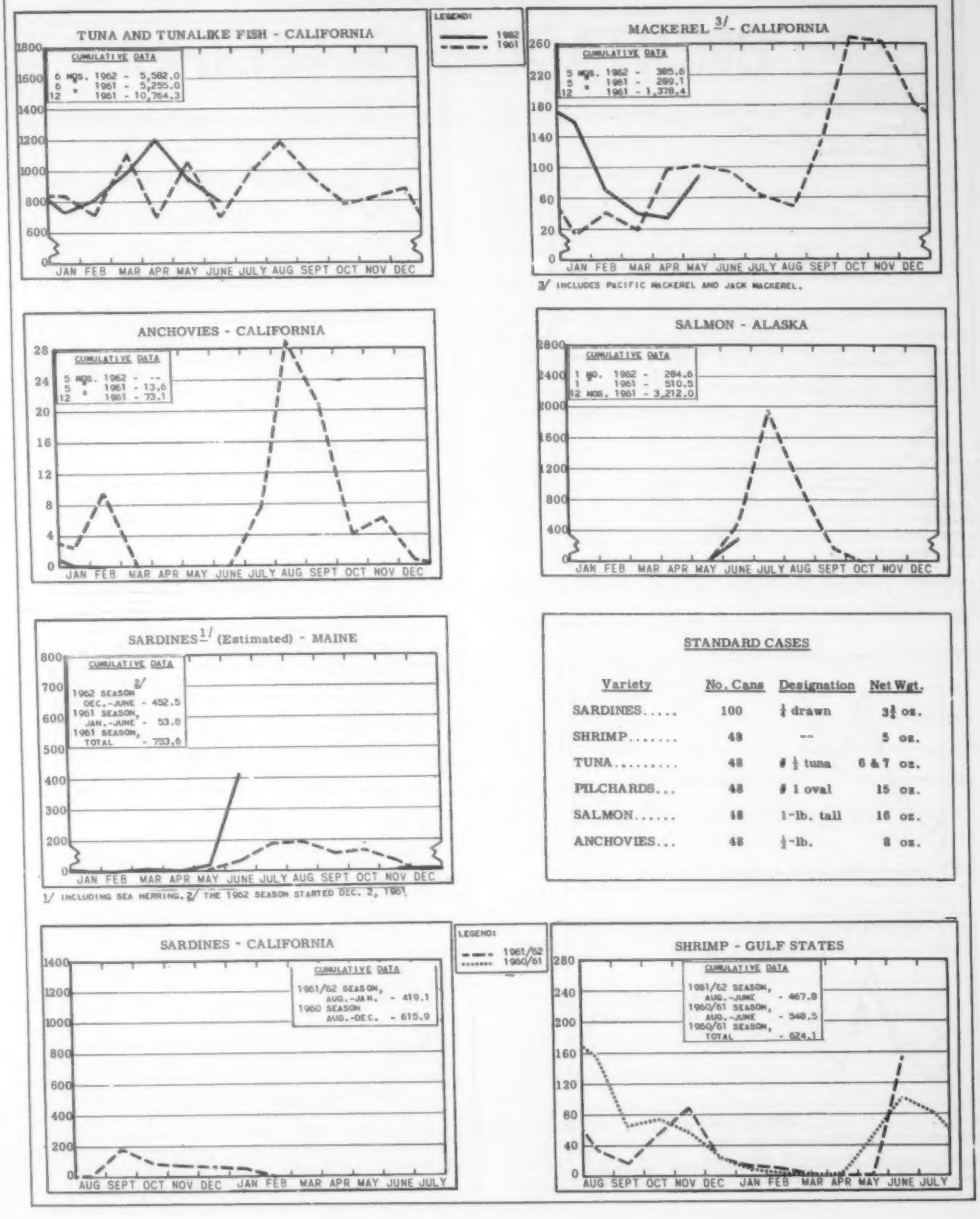

FISH OIL
(In Millions of Gallons)
CUMULATIVE DATA
5 MOS. 1962 - 5.0
5 " 1961 - 5.2
12 " 1961 - 34.4
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 6 - CANNED PACKS of SELECTED FISHERY PRODUCTS

In Thousands of Standard Cases

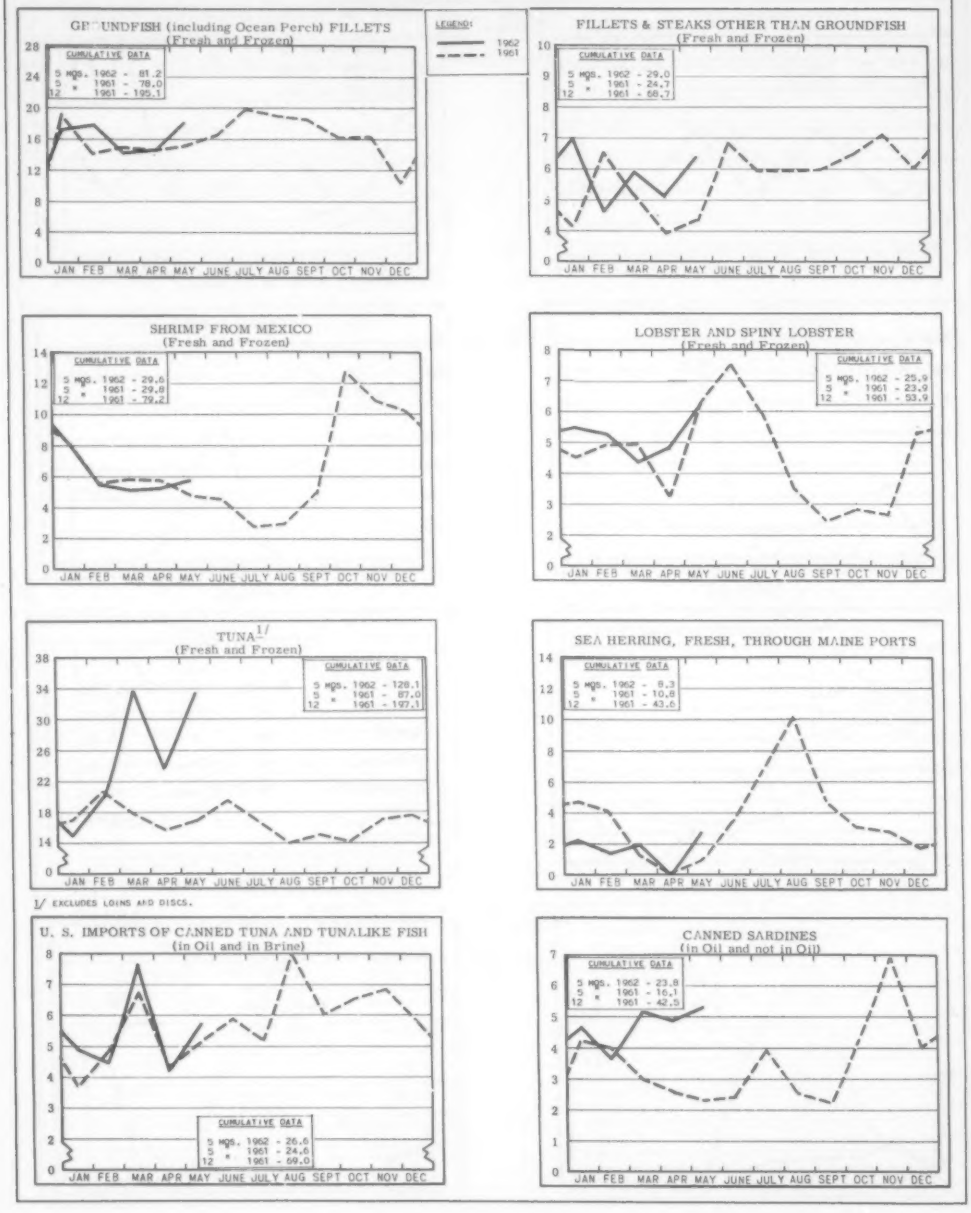

TUNA AND TUNALIKE FISH - CALIFORNIA
CUMULATIVE DATA
6 mos. 1962 - 5,582.0
6 " 1961 - 5,250.0
12 " 1961 - 10,764.3
LEGEND:
1962
1961
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
MACKEREL 3/ - CALIFORNIA
CUMULATIVE DATA
5 mos. 1962 - 385.6
5 " 1961 - 289.1
12 " 1961 - 1,378.4
3/ INCLUDES PACIFIC MACKEREL AND JACK MACKEREL.
ANCHOVIES - CALIFORNIA
CUMULATIVE DATA
5 mos. 1962 - --
5 " 1961 - 13.6
12 " 1961 - 73.1
SALMON - ALASKA
CUMULATIVE DATA
1 mo. 1962 - 284.6
1 " 1961 - 510.5
12 mos. 1961 - 3,212.0
SARDINES 1/ (Estimated) - MAINE
CUMULATIVE DATA
1962 SEASON DEC.-JUNE - 452.5
1961 SEASON, JAN.-JUNE - 53.8
1961 SEASON, TOTAL - 793.6
1/ INCLUDING SEA HERRING. 2/ THE 1962 SEASON STARTED DEC. 2, 1961.
SARDINES - CALIFORNIA
CUMULATIVE DATA
1961/62 SEASON, AUG.-JAN. - 419.1
1960 SEASON AUG.-DEC. - 615.9
LEGEND:
1961/62
1960/61
AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE JULY
SHRIMP - GULF STATES
CUMULATIVE DATA
1961/62 SEASON, AUG.-JUNE - 467.8
1960/61 SEASON, AUG.-JUNE - 348.5
1960/61 SEASON, TOTAL - 624.1

STANDARD CASES

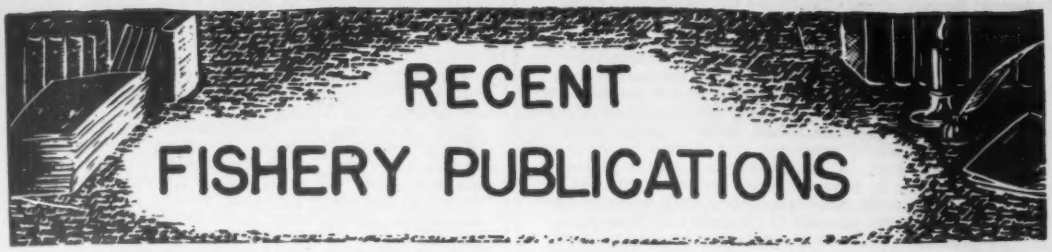
Variety	No. Cans	Designation	Net Wgt.
SARDINES.....	100	¼ drawn	3¾ oz.
SHRIMP.....	48	--	5 oz.
TUNA.....	48	# ½ tuna	6 & 7 oz.
PILCHARDS...	48	# 1 oval	15 oz.
SALMON.....	48	1-lb. tall	16 oz.
ANCHOVIES...	48	½-lb.	8 oz.

CHART 7 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds


GROUNDFISH (including Ocean Perch) FILLETS
(Fresh and Frozen)
CUMULATIVE DATA
5 MOS. 1962 - 81.2
5 " 1961 - 78.0
12 " 1961 - 195.1
LEGEND:
1962
1961
FILLETS & STEAKS OTHER THAN GROUNDFISH
(Fresh and Frozen)
CUMULATIVE DATA
5 MOS. 1962 - 29.0
5 " 1961 - 24.7
12 " 1961 - 58.7
SHRIMP FROM MEXICO
(Fresh and Frozen)
CUMULATIVE DATA
5 MOS. 1962 - 29.6
5 " 1961 - 29.8
12 " 1961 - 79.2
LOBSTER AND SPINY LOBSTER
(Fresh and Frozen)
CUMULATIVE DATA
5 MOS. 1962 - 25.9
5 " 1961 - 23.9
12 " 1961 - 53.9
TUNA 1/
(Fresh and Frozen)
CUMULATIVE DATA
5 MOS. 1962 - 128.1
5 " 1961 - 87.0
12 " 1961 - 197.1
SEA HERRING, FRESH, THROUGH MAINE PORTS
CUMULATIVE DATA
5 MOS. 1962 - 8.3
5 " 1961 - 10.8
12 " 1961 - 43.6
U. S. IMPORTS OF CANNED TUNA AND TUNALIKE FISH
(in Oil and in Brine)
CUMULATIVE DATA
5 MOS. 1962 - 26.6
5 " 1961 - 24.6
12 " 1961 - 69.0
CANNED SARDINES
(in Oil and not in Oil)
CUMULATIVE DATA
5 MOS. 1962 - 23.8
5 " 1961 - 16.1
12 " 1961 - 42.5
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ EXCLUDES LOINS AND DISCS.



FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE OFFICE OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES.
FL - FISHERY LEAFLETS.
MNL - REPRINTS OF REPORTS ON FOREIGN FISHERIES.
SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
SL - STATISTICAL SECTION LISTS OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.
SSR.- FISH. - SPECIAL SCIENTIFIC REPORTS--FISHERIES (LIMITED DISTRIBUTION).

Number — Title

CFS-2890 - Georgia Landings, March 1962, 2 pp.
CFS-2892 - Imports and Exports of Fishery Products, 1957-1961, Annual Summary, 15 pp.
CFS-2893 - Alabama Landings, Annual Summary, 1961, 7 pp.
CFS-2894 - Texas Landings, February 1962, 3 pp.
CFS-2898 - Alabama Landings, March 1962, 3 pp.
CFS-2899 - Frozen Fish Report, April 1962, 8 pp.
CFS-2901 - Fish Meal and Oil, March 1962, 2 pp.
CFS-2902 - Maine Landings, March 1962, 4 pp.
CFS-2903 - New York Landings, March 1962, 4 pp.
CFS-2904 - Maryland Landings, February 1962, 3 pp.
CFS-2905 - California Landings, February 1962, 4 pp.
CFS-2907 - Virginia Landings, March 1962, 3 pp.
CFS-2909 - Mississippi Landings, March 1962, 3 pp.
CFS-2911 - New Jersey Landings, March 1962, 3 pp.
CFS-2913 - Texas Landings, March 1962, 3 pp.
CFS-2916 - Fish Meal and Oil, April 1962, 2 pp.
CFS-2921 - Florida Landings, April 1962, 9 pp.

CFS-2900 - Fisheries of the United States, 1961 (A Preliminary Review), 74 pp., illus., April 1961. This bulletin includes 1961 statistics on the United States catch, price indexes, manufactured fishery products, foreign trade, supplies of certain fishery products, fishery loan program, and world fisheries. Per capita consumption of fish in the United States increased to 10.9 pounds in 1961, a half pound more than in the previous year. This increase was divided equally between "fresh and frozen" and canned items. The supply of domestically-produced fresh and frozen products declined substantially, the report shows, even though the annual harvest was the Nation's second largest--5.2 billion pounds. Imports were up sharply due to increased receipts of groundfish fillets and blocks, and shrimp; however, both edible and nonedible imports established records. The total amount paid to United States fishermen and vessel owners amounted to $358 million--nearly $4 million more than 1960, but $15 million less than the record $373 million paid in 1958. The average price per pound was 6.94 cents, a low figure due to the record catch (2.3 billion pounds) of low-priced menhaden. San Pedro, Calif., was the leading United States fishing port in 1961 with respect to both volume and value--416 million pounds with an ex-vessel value to the fishermen of $36 million. The figures on the 1960 world catch--a record of 83.2 billion pounds--recently compiled by the Food and Agriculture Organization of the United Nations are included in the report. Five countries accounted for well over 50 percent of the total catch--Japan (16.4 percent), China (Mainland) (13.3 percent), Peru (9.4 percent), U.S.S.R. (8.1 percent), and the United States (7.5 percent).

FL-536 - Recognizing Important Shrimps of the South, by William W. Anderson, 5 pp., illus., February 1962 (Revision of FL-366, December 1958, and Sep. No. 242, December 1949). Describes the more frequently taken species of shrimp along the South Atlantic and Gulf coasts of the United States which are of some commercial value. Includes illustrations of the white or common shrimp, brown shrimp, pink or brown-spotted shrimp, the seabob, rock shrimp, and the royal red shrimp.

Wholesale Dealers in Fishery Products, 1962 (Revised):
SL- 4 - Rhode Island, 2 pp.
SL- 5 - Connecticut, 1 p.
SL- 9 - Delaware, 1 p.
SL-18 - Mississippi, 3 pp.
SL-23 - Washington, 7 pp.

Firms Canning, 1961 (Revised)
SL-103 - Tuna, 2 pp.
SL-107 - Fish and Shellfish Specialties, 5 pp
SL-119 - Squid, 1 p.

SL-161 - Producers of Packaged Fish, 1961, 7 pp. (Revised)

Sep. No. 652 - Chicago Receipts of Fresh and Frozen Fishery Products, and Wholesale Market Trends, 1961.

SSR-Fish. No. 389 - Oceanic Salinites off the South Atlantic Coast of the United States--Theodore N. Gill Cruises 1-9, 1953-54, by William W. Anderson, Joseph E. Moore, and Herbert R. Gordy, 212 pp., illus., August 1961.

SSR-Fish. No. 410 - Spring and Summer Temperatures of Streams Tributary to the South Shore of Lake Superior, 1950-60, by Bernard R. Smith, 63 pp., illus., March 1962.

Annual Report of the Gloucester Technological Laboratory, Fiscal Year 1961, by Joseph W. Slavin, Circular 139, 13 pp., illus., processed. A discussion of the highlights of the program and accomplishments of the Gloucester Technological Laboratory for fiscal year 1961 including research on the chemistry and biochemistry of fish, developments of grade standards and specifications, inspection and certification of fishery products, and studies on the preservation of fish. Also included is a list of publications written by laboratory personnel during 1961. The new technological laboratory at Gloucester was dedicated by the Bureau of Commercial Fisheries on June 17, 1960, and is staffed by 19 professional people trained in the fields of chemistry, food technology, and engineering.

Operations of the Bureau of Commercial Fisheries under the Saltonstall-Kennedy Act, Fiscal Year, 1960, 109 pp., illus., processed. The sixth annual report to the Congress of the activities of the U. S. Bureau of Commercial Fisheries during the fiscal year ending June 30, 1960, under the provisions of the Saltonstall-Kennedy Act of July 1, 1954. The Act makes available funds from import duties collected on foreign fishery products for the promotion of the free flow in commerce of domestic fishery products and provides for a wide range of research and services supporting the development and wise utilization of the nation's fishery resources and the stabilization of the domestic fishing industry. This publication discusses commercial fishery progress by geographic areas including nationwide programs such as technological programs, economic studies, statistical programs, Market News services, and marketing programs. Among the important accomplishments during fiscal year 1960: (1) methods were developed to determine amounts of saturated fatty acids and numbers of double-bond structures in fish oils; (2) methods were developed to prepare several polyunsaturated derivatives from fish oils which are of potential value in the food industry, in the fields of resins and plasticizers, and in other fields; (3) in New England an analysis of average landings of yellowtail flounder per day of fishing effort aided biologists in determining the factor causing fluctuations in the abundance of this species; (4) at 14 stations along the Middle Atlantic shelf of the Eastern United States, sea scallops were found in sufficient quantities to warrant a limited commercial fishery; (5) experiments demonstrated the advantage of suspended oyster cultch in the Chesapeake Bay; (6) positive identification of the early developmental stages of yellowfin menhaden was accomplished by artifical fertilization of eggs and rearing of the larvae in the South Atlantic; (7) in the Gulf of Mexico identifications of early larval stages of two penaeid shrimp were specific and important advancements toward estimation of the abundance, seasonal occurrence, and distribution of shrimp larvae; (8) the results of exploratory trawling cruises in Lake Erie showed that up to 5,000 pounds of smelt can be taken at certain times and in certain places in the waters of Ohio, Pennsylvania, and New York; (9) in California, listings of some 4 million oceanographic observations, along with selected summaries, have been obtained for an investigation of month-to-month and year-to-year changes in oceanic conditions over the past 25 years; (10) studies were initiated in the Pacific Northwest for determining the downstream migration paths and times of migration of young salmon in lakes behind dams; and (11) a tagging study in Brooks Lake, Alaska, has shown the importance of specific racial groups occurring close to each other in a single lake system.

Our Commercial Fisheries, Conservation Notes, Circular 55, Revised October 1960. Informative bulletin containing fishing terminology, classification of fish, and facts man should know about fish and what affects their abundance and movements. Also included are data on the food chain, tagging, color marking, underwater television and Scuba divers, chemical and electrical aids, sounds of fish, sea mammals, international and interstate commissions, and the American catch. Research data and statistics on fishing for food are also covered.

THE FOLLOWING MARKET NEWS LEAFLETS ARE AVAILABLE FROM THE BRANCH OF MARKET NEWS, BUREAU OF COMMERCIAL FISHERIES, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D. C.

Number	Title
MNL-26	Taiwan Fisheries in 1961, 7 pp.
MNL-34	Fisheries in Greece, 1961, 16 pp.
MNL-54	Fisheries in British Borneo, 1961, 3 pp.
MNL-57	Fisheries in the Federal Republic of Germany - Annual Survey, 1961, 22 pp.
MNL-71	Canada's Fishing Industry, 1961, 7 pp.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED.

California Fishery Market News Monthly Summary, Part I - Fishery Products Production and Market Data, April 1962, 15 pp. (Market News Service, U. S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif.) California cannery receipts of tuna and tunalike fish and other species used for canning; pack of canned tuna, tunalike fish, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California and Arizona imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish; Oregon and Washington receipts (domestic and imports) of fresh and frozen tuna and tunalike fish; for the month indicated.

California Fishery Market News Monthly Summary, Part II - Fishing Information, May 1962, 11 pp., illus. (U. S. Bureau of Commercial Fisheries, Biological Laboratory, P. O. Box 6121, Pt. Loma Station, San Diego 6, Calif.) Contains sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists; for the month indicated.

(Chicago) Monthly Summary of Chicago's Wholesale Market Fresh and Frozen Fishery Products Receipts, Prices, and Trends, May 1962, 13 pp. (Market News Service, U. S. Fish and Wildlife Service, 565 W. Washington St., Chicago 6, Ill.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and weekly wholesale prices for fresh and frozen fishery products; for the month indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, May 1962, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 S. King St., Hampton, Va.) Landings of food fish and shellfish and production of crab meat and shucked oysters for the Virginia areas of Hampton Roads, Chincoteague, Lower Northern Neck, and Lower Eastern Shore; the Maryland areas of Crisfield, Cambridge, and Ocean City; and the North Carolina areas of Atlantic, Beaufort

and Morehead City; together with cumulative and comparative data on fishery products and shrimp production; for the month indicated.

New York City's Wholesale Fishery Trade--Monthly Summary--March 1962, 18 pp. (Market News Service, U. S. Fish and Wildlife Service, 155 John St., New York 38, N. Y.) Includes summaries and analyses of receipts and prices on wholesale Fulton Fish Market, including both the salt- and fresh-water sections; imports entered at New York customs district; primary wholesalers' selling prices for fresh, frozen, and selected canned fishery products; marketing trends; and landings at Fulton Fish Market docks and Stonington, Conn.; for the month indicated.

(Seattle) Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, May 1962, 9 pp. (Market News Service, U. S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle 4, Wash.) Includes Seattle's landings by the halibut and salmon fleets reported through the exchanges; landings of halibut reported by the International Pacific Halibut Commission; landings of otter-trawl receipts reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and airways; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; and imports from other countries through Washington customs district; for the month indicated.

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE ONLY FROM THE U. S. BUREAU OF COMMERCIAL FISHERIES BIOLOGICAL LABORATORY, SEATTLE, WASH.:

A Study of the Hokkaido King Crab (Hokkaido-san Tarabagani no Kenkyu), by Kiichi Nakazawa, Report No. 60-22528, 1960, printed. (Translated from Dobutsugaku Zasshi, vol. 24, no. 279, 1912, pp. 1-13.)

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS AVAILABLE ONLY FROM THE U. S. BUREAU OF COMMERCIAL FISHERIES BIOLOGICAL LABORATORY, HONOLULU, HAWAII:

The Copepod Fauna (Calanoida) and Zoogeographical Divisions of the North Pacific and Adjoining Waters, by K. A. Brodsky, 78 pp., illus., processed. (Translated from the Russian Izdatel'stvo Akademii Nauk SSSR, Moscow-Leningrad, 1957.)

THE FOLLOWING ENGLISH TRANSLATION OF A FOREIGN LANGUAGE ARTICLE IS NOT FOR GENERAL DISTRIBUTION BUT IS AVAILABLE FOR REFERENCE ONLY FROM THE U. S. BUREAU OF COMMERCIAL FISHERIES, P. O. BOX 3830, HONOLULU, HAWAII.

On the Distribution of Macroplankton in the Northern Half of the Indian Ocean, by N. M. Voronina, 13 pp., illus., processed, May 1962. (Translated from Okeanologiia, vol. 2, no. 1, 1962, pp. 118-125.)

THE FOLLOWING SERVICE PUBLICATION IS FOR SALE AND IS AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

Tank Culture of Tilapia, by Richard N. Uchida and Joseph E. King, Fishery Bulletin 199 (from Fishery Bulletin of the Fish and Wildlife Service, vol. 62), 36 pp., illus., printed, 30 cents, 1962.

MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE ORGANIZATIONS OR PUBLISHER MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

AGAR-AGAR:

"Itanigusa Ahnfeltia plicata Yori Kanten no Shinseizoho Nikansuru Kenkyu. I" (Studies on New Method of Preparation of Agar Agar from Ahnfeltia plicata. I", by Y. Kojima and others, article, Journal of the Shimonoseki College of Fisheries, vol. 9, no. 1, 1960, pp. 43-52, illus., printed in Japanese with English summary. Yoshimi, Shimonoseki, Japan.

"_____. II--Shinta no Dasshoku Oyobi Dassui ni Tsuite" (II--On the Decolorization and Dehydration of Crude Agar Gel), vol. 9, no. 3, pp. 317-322.

"_____. III--Itani Kanten Seizo no Kogyoka ni Tsuite" (III--On the Industrialization for Manufacturing Itani Agar), vol. 9, no. 3, pp. 323-328.

ALASKA:

Annual Report of Progress, 1959-60 (Federal Aid in Fish Restoration Project F-5-R-1, Sport Fish Investigations of Alaska), Report No. 1-A, vol. 1, 142 pp., illus., processed. Alaska Dept. of Fish & Game, Sport Fish Division, Juneau, Alaska.

ALGAE:

"The Marine Algae of the Hundred Islands, Philippines," by Ernani G. Menez, article, The Philippine Journal of Science, vol. 90, no. 1, March 1961, pp. 37-86, illus., printed. National Institute of Science and Technology, P. O. Box 774, Manila, Philippines.

ALMANAC:

The Nautical Almanac for the Year 1963, 30 M, 311 pp., printed, $2. U. S. Naval Observatory, Washington, D. C., 1962. (Available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Provides in a convenient form the data required for the practice of astronomical navigation at sea.

ARCTIC CHAR:

"Ilkalupik'--The Arctic Char," article, Trade News, vol. 14, no. 9, April 1962, pp. 3-5, illus., printed. Director of Information and Consumer Service, Department of Fisheries, Ottawa, Canada. Describes, with numerous illustrations, the arctic char fishing operation of the Eskimos. Ilkalupik, meaning "special fish" in English, is the name the Eskimos have given to the arctic char. The Eskimos have been encouraged to organize fishing cooperatives, procure fishing gear, freezing apparatus, and other equipment necessary for a commercial fishery. The char fisheries provide a good source of income for the Eskimo fishermen, and serve to reduce their reliance on hunting as a means of acquiring food supplies for their families.

BARNACLES:

The Attachment of the Barnacle, BALANUS APMPHITRITE NIVEUS Darwin, and Other Fouling Organisms to the Rock Shrimp, SICYONIA DORSALIS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Kingsley, by Bonnie Eldred, Contribution No. 62, 5 pp., illus., printed. (Reprinted from Crustaceana, vol. 3, part 3, pp. 203-206.) Florida State Board of Conservation Marine Laboratory, Maritime Base, Bayboro Harbor, St. Petersburg, Fla., 1962.

BRAZIL:

Pesca - 1960, Estrutura e Producao (Fisheries - 1960, Organization and Production), 45 pp., illus., processed in Portuguese. Ministerio da Agricultura, Servico de Estatistica da Producao, Avenida Pasteur no. 404, Rio de Janeiro, Brazil, April 1962.

CALIFORNIA:

Digest of Commercial Fish Laws, 1961-63, 30 pp., illus., printed. California Department of Fish and Game, 722 Capitol Ave., Sacramento 14, Calif. Explains the California commercial fishing laws. This booklet is not intended to replace the Fish and Game Code but to explain the Code to the fishing industry. Contains information on license provisions, species covered, the commercial fishing districts, provisions of the Code affecting the commercial fisheries, calendar of the fishing seasons, and use or possession of nets in certain districts.

CANADA:

Fisheries Council of Canada, Annual Review, 1962, 72 pp., illus., printed. Fisheries Council of Canada, Rm. 703, 77 Metcalfe St., Ottawa 4, Canada. Contains, among others, the following articles: "Quebec Fisheries, 1961," by Guy LeBlanc; "Water Pollution in British Columbia," by Michael Waldichuk; "Canada's Fisheries in 1961," by W. C. MacKenzie; "Commercial Fisheries of New Brunswick," by Leonce Chenard; "Rehabilitation of the Atlantic Oyster Industry," by Mary Hatheway; and "The Fishery in the ICNAF Convention Area in 1959," by Frank R. Thomas.

Fisheries Statistics of Canada, 1960 (New Brunswick), 32 pp., illus., printed in French and English, 75 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada, June 1962. Consists of tables giving the quantity and value of the principal species of fish and shellfish landed in New Brunswick, 1948-60; quantity and value of manufactured fishery products, 1948-60; quantity and value of landings by species and fisheries districts, 1959-60; capital equipment in the primary fisheries operations, 1959-60; classification of powered fishing craft by over-all length, 1960; number of persons engaged in primary operations by fisheries districts, 1959-60; and persons engaged in the major fisheries, 1959-60.

Fisheries Statistics of Canada, 1960 (Quebec), 57 pp., illus., printed in French and English, C$1. Queen's Printer and Controller of Stationery, Ottawa, Canada, May 1962. Consists of tables giving the quantity and value of the principal species of fish and shellfish landed in Quebec in 1948-1960; quantity and value of landings by species and fisheries districts, 1959-1960; quantity and value of manufactured fishery products by species, 1959-1960; capital equipment employed in primary operations by fisheries districts, 1959-1960; and number of persons engaged in primary operations by fisheries districts, 1959-1960. Also includes a map and description of Quebec's sea fisheries districts.

Journal of the Fisheries Research Board of Canada, vol. 19, no. 2, March 1962, pp. 173-363, illus., printed, C$1.50. Queen's Printer and Controller of Stationery, Ottawa, Canada. Includes, among others, the following articles: "Migratory Behaviour of Juvenile Rainbow Trout, Salmo gairdneri, in Outlet and Inlet Streams of Loon Lake, British Columbia," by T. G. Northcote; "Tag Failure Associated with a Net Fishery as a Source of Experimental Error," by Robert R. Parker; "Dogfish Gelatin," by Shirley E. Geiger, Eve Roberts, and N. Tomlinson; "Olfactory Perception in Juvenile Salmon. I--Observations on Response of Juvenile Sockeye to Extracts of Foods," by J. R. McBride and others; "Photographing Halibut Otoliths for Measuring Growth Zones," by G. Morris Southward; and "A Method of Calculating Body Lengths from Otolith Measurements for Pacific Halibut and Its Application to Portlock-Albatross Grounds Data Between 1935 and 1957," by G. Morris Southward.

CANNING:

"As Conservas de Peixe no Mercado Ingles em 1961" (Canned Fish on the English Market in 1961), by Victor A. Martin; "As Conservas de Peixe Portuguesas e o Mercado Belga em 1961" (Portuguese Canned Fish on the Belgian Market in 1961), by Willy Moers; "A Situacao das Conservas de Peixe na Italia" (Status of Canned Fish in Italy), by Enrico Cresta; "Mercada de Franca" (Markets of France), by J. Cardoso, articles, Conservas de Peixe, vol. 17, no. 193, April 1962, pp. 63-65, 67-68, 71, 73, 77, 75, illus., printed in Portuguese. Sociedade Astoria, Lda., Requeirao dos Anjos, 68, Lisbon, Portugal.

"Etudes et Recherches sur la Fabrication des Conserves de thon de Madrague du Maroc (Thunnus thynnus L.)" (Studies and Research on the Canning of Tuna from the Madragues or Coastal Traps of Morocco), by R. Meesemaecker and Y. Sohier, 27 pp., illus., printed in French. (Reprinted from Revue de la Conserve, December 1960 and January 1961.) Societe d'edition pour L'alimentation, 1 rue de la Reale, Paris 1, France.

CARP:

"Experiments on Induced Spawning of Indian Carps with Pituitary Injections," by H. Chaudhuri, article, Indian Journal of Fisheries, vol. 7, no. 1, 1960, pp. 20-48, illus., printed. Ministry of Food and Agriculture, New Delhi, India.

L'elevage de la carpe au Liban (Rearing of Carp in Lebanon), by J. A. Timmermans, Travaux, Ser. D., no. 29, 1960, 23 pp., illus., printed in French with English summary. Administration des Eaux et Forets, Station de Recherches de Groenendaal, Groenendaal, Belgium.

CHESAPEAKE BAY:

Chesapeake Science, vol. 3, no. 1, March 1962, 61 pp., illus., printed, 75 cents. Natural Resources Institute of the University of Maryland, Chesapeake Biological Laboratory, Solomons, Md. Contains the following articles: "Sport Fishing Survey in 1960 of the Lower Patuxent Estuary and the 1958 Year-Class of Striped Bass," by L. W. Shearer, D. E. Ritchie, Jr., and C. M. Frisbie; "Age and Growth of Spot in Lower Chesapeake Bay, with Notes on Distribution and Abundance of Juveniles in the York River System,"

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by A. L. Pacheco; "Effects of Gamma Radiation on Two Decapod Crustaceans, Palaemonetes pugio and Uca pugnax," by George H. Rees; "Occurrence of the Acanthocephalan Parasite, Telosentis tenuicornis, in the Spot, Leiostomus xanthurus, in Chesapeake Bay," by Harry W. Huizinga and A. James Haley; "Atlantic Menhaden Larvae in Virginia Coastal Waters," by W. H. Massmann, J. J. Norcross, and E. B. Joseph; "Predation of Bluefish on Young Atlantic Menhaden in Indian River, Delaware," by George C. Grant; and "The Atlantic Bonito, Sarda sarda, in Upper Chesapeake Bay, and Comments on the Seaside Fishery of Maryland," by Romeo J. Mansueti.

Chesapeake Science, vol. 3, no. 2, June 1962, 80 pp., illus., printed, 75 cents. Managing Editor, Natural Resources Institute of the University of Maryland, Chesapeake Biological Laboratory, Solomons, Md. Includes, among others, the following articles: "Quantitative Seasonal Aspects of Zooplankton in the Delaware River Estuary," by L. Eugene Cronin, Joanne C. Daiber, and Edward M. Hulburt; "Infraspecific Variation in the White Perch, Roccus americanus (Gmelin)," by William S. Woolcott; "Periods of Spawning and Setting of the Soft-Shelled Clam, Mya arenaria, at Solomons, Maryland," by Hayes T. Pfitzenmeyer; "Distribution of Species of Cliona (Boring Sponge) of the Eastern Shore of Virginia in Relation to Salinity," by Sewell H. Hopkins; "Summer Food and Growth of Chain Pickerel, Esox niger, in Brackish Waters of the Severn River, Maryland," by C. D. Meyers and R. J. Muncy; "Calico Crab, Ovalipes o. ocellatus, in Mid-Chesapeake Bay, Maryland," by Romeo J. Mansueti; "First Record of the King Mackerel, Scomberomorus cavalla, in Northern Chesapeake Bay, Maryland," by Grover Butz and Romeo J. Mansueti; and "Distribution of Small, Newly Metamorphosed Sea Lampreys, Petromyzon marinus, and Their Parasitism of Menhaden, Brevoortia tyrannus, in Mid-Chesapeake Bay During Winter Months," by Romeo J. Mansueti.

CLAMS:

"The Pacific Razor Clam," by D. B. Quayle, article, Trade News, vol. 14, no. 9, March 1962, pp. 8-9, illus., printed. Director of Information and Consumer Service, Department of Fisheries, Ottawa, Canada. The only significant fishery for razor clams in Canada occurs out of Masset, British Columbia. This article describes the razor clam (Silique patula) as to appearance, methods of obtaining, and processing.

COD:

"Aspectos da Industria Nacional do Bacalhau" (Outlook of the National Cod Industry), by A. Torres Botelho, article, Conservas de Peixe, vol. 17, no. 193, April 1962, pp. 51, 53, illus., printed in Portuguese. Sociedade Astoria, Lda., Regueirao dos Anjos, 68, Lisbon, Portugal.

"Observations on the Cod Trawl Fishery in the Gulf of St. Lawrence During the Spring of 1958," by J. R. Clark and F. D. McCracken, article, Annual Proceedings, International Commission for the Northwest Atlantic Fisheries, vol. 8, 1958, pp. 99-100, printed. International Commission for the Northwest Atlantic Fisheries, Halifax, Nova Scotia, Canada.

COMMISSIONS:

(Atlantic States Marine Fisheries Commission) Twentieth Annual Report (to the Congress of the United States and to the Governors and Legislators of the Fifteen Compacting States), 80 pp., illus., printed. Atlantic States Marine Fisheries Commission, 200 E. College Ave., Tallahassee, Fla., June 1962. Summarizes the changes that have taken place during the past two decades in fisheries work by the Federal agencies and by state administrative agencies and laboratories along the Atlantic Coast. Includes condensed reports on the work of the Commission and of various committees. Also contains reports from the North Atlantic Section on the need for an Extension Service, Federal aid (S. 1230 Gruening bill), time-temperature studies on frozen fish products, Northeastern Resources Committee, and shellfisheries problems. The Middle Atlantic Section reports on sport fishery catch statistics, fish protein concentrate, Federal aid for state research, pollution of near-shore waters by small boats, Biological Committee, artificial reefs, shellfish sanitation, and striped bass regulations. The Chesapeake Bay Section discusses mid-Atlantic bight, report of Biological Committee, Gruening Bill S. 1230, sport fishery studies, striped bass, report of Technological Committee, shellfish sanitation, and Potomac River Compact. The South Atlantic Section reports on shrimp, exploratory fishing, recommendations of Scientific Committee, and difficulty in getting Dingell-Johnson funds. Appendices include state legislation recommended, auditor's report, report of committees, and resolutions adopted by the Commission.

CURRENTS:

Manual of Current Observations (Supplement to Special Publication No. 215, Revised 1950 Edition), 10 pp., illus., printed, single copy 20 cents. Coast and Geodetic Survey, U. S. Department of Commerce, Washington, D. C., November 1961. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) The Coast and Geodetic Survey has made many changes in the methods used to observe, record, and process water currents since the publishing of the Manual of Current Observations in 1950. Several of the more important changes are given in this supplement.

ESTUARINE STUDIES:

Potential Research Benefits to be Derived from Estuarine Heterogeneity, by Robert M. Ingle, Contribution No. 63, 5 pp., printed. (Reprinted from Tulane Studies in Zoology, vol. 9, no. 5, April 16, 1962, pp. 295-299.) Florida State Board of Conservation, Tallahassee, Fla.

FACTORYSHIPS:

"Freezing Equipment for Ships," by M. B. F. Ranken, article, Fish Trades Gazette, No. 4047, pp. 11-14, printed. Industrial Newspapers Ltd., John Adams House, John Adams St., London, WC2, England, 1961.

Refrigeration in Fishing Vessels, by G. E. Eddie, 8 pp., printed. World Refrigeration and Air-Conditioning, 11a Gloucester Rd., London, SW7, England, April, 1961.

"Walfangmutterschiff Jury Dolgoruky" (The Whalecatcher-Mothership Jury Dolgoruky), article Schiffbautechnik, vol. 11, 1961, pp. 59-68, 115-125, 235-

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241, illus., printed in German. VEB Verlag Technik, 13/14, Oranienburgerstrasse, Berlin C.2, Germany.

FAROE ISLANDS:
"The Fishery of the Faroes in 1961," article, Faroes in Figures, no. 18, June 1962, pp. 2-7, printed. Faero Amts Sparekasse, Thorshavn, Faroe Islands. Features a review of the fishery in the Faroes in 1961. Contains statistical tables on total catch; catch of demersal species and herring by fishing grounds, 1953-61 and 1952-1961, respectively; disposition of catch, 1952-61; annual output of processed commodities, 1953-61; exports of salt fish and dried cod by countries; and production of salt fish by fishing grounds and mode of catch.

FAUNA:
A Checklist of the Flora and Fauna of Northern Florida Bay and Adjacent Brackish Waters of the Florida Mainland Collected During the Period July, 1957 Through September, 1960, by Durbin C. Tabb and Raymond B. Manning, Contribution No. 354, 88 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Carribbean, vol. 11, no. 4, December 1961, pp. 552-649.) Marine Laboratory, University of Miami, 1 Rickenbacker Causeway, Miami, Fla.

FEEDING OF FISH:
Rate of Metabolism and Food Requirements of Fishes, by G. G. Winberg, Translation Series No. 194, 248 pp. (Translated from the Russian under the editorial direction of F. E. J. Fry and W. R. Ricker.) Fisheries Research Board of Canada, Biological Station, Nanaimo, B. C., Canada, 1960.

FISH CULTURE:
Compte rendu de Mission piscicole aux Etats-Unis et au Canada, Debut septembre - mi-octobre 1958 (Account of the Fish Culture Mission to the United States and Canada, Beginning September - Mid-October 1958), by Marcel Huet, Travaux, Ser. D, no. 25, 1959, 40 pp., illus., printed in French. Administration des Eaux et Forets, Station de Recherches de Groenendaal, Groenendaal, Belgium.

FISHERIES MANAGEMENT:
"Fish and the Freedom of the Seas," by S. V. Ozere, article, Trade News, vol. 14, no. 9, March 1962, pp. 3-5, 11, printed. Director of Information and Consumer Service, Department of Fisheries, Ottawa, Canada. According to the author, "While it is essential for Government to be thoroughly acquainted with the problems of the fishing industry, it is equally important for industry to have a good knowledge of the problems of Government. Only in this way can we bring about sound development of our resources for the benefit of the present and future generations." In this article, the author discusses some of the international aspects of the problems encountered in the management of sea fisheries.

FISHERY COOPERATIVES:
"An Experiment in Fisheries Cooperatives," by G. T. Taylor, article, West Indies Fisheries Bulletin, no. 6, November-December 1961, pp. 1-9, processed. Ministry of Natural Resources and Agriculture, Federal House, Port of Spain, Trinidad, West Indies. Discusses an experiment used to develop the fisheries in St. Lucia, utilizing mechanized boats with a variety of gear, and organized operation of fishing boats and marketing fish.

FISH FINDER:
Comparison Between Survey Map by 14.5 KC. Fish-Finder and That by 200 KC. Fish-Finder with Sharp Beam on Same Sea, by Tomiju Hashimoto and Yoshinobu Maniwa, Report No. 60-13257, 1960, 20 pp., illus., printed, $1.10. (Translated from Gyosen Kenkyu Giho, no. 12, 1958, pp. 149-155.) Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.

FISH LIST:
"An Annotated List of the Fishes of Great Smoky Mountains National Park, by Robert E. Lennon, article, Journal of the Tennessee Academy of Science, vol. 37, no. 1, 1962, pp. 5-7, printed. Secretary, Tennessee Academy of Science, Belmont College, Nashville, Tenn.

FISH MANAGEMENT:
"Fisheries Management in Australia," by D. J. Gates and D. Macdonald, article, Fisheries Newsletter, vol. 21, no. 2, February 1962, pp. 21-24, illus., printed. Commonwealth Director of Fisheries, Department of Primary Industry, Canberra, Australia. A summary of the fisheries management program of Australia. Includes a table of major management measures in force January 1, 1962, under the Fisheries Act 1952-1959, and the fisheries acts of the States. Also contains maps illustrating the areas in which closed seasons apply, and the area where Danish seine mesh regulations are in force.

Fishery Management, by R. S. Fort and J. D. Brayshaw, 394 pp., illus., printed. Faber and Faber, 24 Russell Square, London WC1, England, 1961.

FISH MEAL:
"Fiskemelindustrien i Peru" (The Fish Meal Industry in Peru), article, Konkylien, vol. 6, no. 1-2, December 1961, pp. 19, 29, printed in Norwegian with English summary. Stord Marin Industri A. S., Bergen, Norway.

FISH POPULATIONS:
Comparison of Variations of Fishing Condition in a Whole Year Among Each Subarea and Migration of Fish Groups in the Southern Part of the Pacific Ocean, by J. Nakagome, Report No. 59-19361, August 31, 1959, 10 pp., printed, microfilm $1.80, photocopy $1.80. Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

Correlation Between the Movement and Appearance of Fish School, by Torshiro Kuroki, Report No. 59-22355, 1959, 29 pp., illus., printed, microfilm $2.40, photocopy $3.30. (Translated from Kagoshima Daigaku Suisan Gakubu Kiyo, vol. 7, February 1959, pp. 87-101.) Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

FOOD AND AGRICULTURE ORGANIZATION:
The Food and Agriculture Organization has published reports describing that Agency's activities under

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the Expanded Technical Assistance Program for developing the fisheries of many countries. These reports have not been published on a sales basis, but have been processed only for limited distribution to governments, libraries, and universities. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy.

Report on the Indo-Pacific Fisheries Statistics Training Center Held in Bangkok, Thailand, 19 June to 31 July, 1952, FAO Report No. 357, 58 pp., illus., 1955.

FREEZE-DRYING:

"Accelerated Freeze Drying. II--Fundamental Design Problems," by K. Ward, article, Food Manufacture, vol. 36, no. 2, 1961, pp. 60-63, 66, illus., printed. Leonard Hill Ltd., 9 Eden St., London NW1, England.

"Torring of Levnedsmidler" (Drying of Foodstuffs), by E. E. Petersen, article, Ingeniorens Ugeblad, vol. 5, no. 28, 1961, 12 pp., illus., printed in Danish. Ingeniorhuset, 31, Vester Farimagsgade, Copenhagen-V., Denmark.

FREEZERSHIP:

Fishroom Insulation and Refrigeration--Some Experiences on a Modern Trawler, by J. Waterman, Torry Research Report No. 2, 4 pp., printed. Torry Research Station, Aberdeen, Scotland, 1960.

"The Frozen Food Story," by Sheila R. Naidoo, article, Liberia Chamber of Commerce Journal, pp. 12-13, illus., printed, 25 cents. Consolidated Publications, Inc., The Simpson Bldg., Center St., P. O. Box 470, Monrovia, Liberia. Describes the fish factory trawler, The Fairtry III, and methods used to process and freeze fish at sea. A diagram showing various sections of the vessel is also included.

FREEZING:

"Gyoniku no Tokusei ni Kansuru Kenkyu. III--Chushutsu Actomyosin no Toketsu ni Yoru Fuyokasei" (Studies on the Characteristic Quality of Fish Meat. III--On Insolubility of Extracted Actomyosin Brought About by Freezing), by T. Tokunaga and M. Nakamura, article, Bulletin, Hokkaido Regional Fisheries Research Laboratory, no. 23, 1960, pp. 61-66, illus., printed in Japanese with English summary. Hokkaido Regional Fisheries Research Laboratory, Yoichi, Hokkaido, Japan.

"Konveirnyi Skoromorozil' nyi Apparat na Murmanskom Pybokombinate i evo Ispytanie" (Conveyor-Type Quick Freezer at the Murmansk Fish Processing Plant and Its Testing), by I. T. Brosalin, A. K. Kaminarskaya and G. E. Martyshkin, article, Kholodil' naya Tekhnika, no. 1, 1962, pp. 34-37, illus., printed in Russian. Four Continent Book Corp., 822 Broadway, New York 3, N. Y.

FRESH-WATER FISH:

"Bacteriological Studies of Freshwater Fish. I--Isolation of Aerobic Bacteria from Several Species of Ontario Fish," by T. P. T. Evelyn and L. A. McDermott, article, Canadian Journal of Microbiology, vol. 7, 1961, pp. 375-382, illus., printed. National Research Council, Ottawa, Canada.

"Fisheries Research Team Provides Practical Aid to Industry. IV--Freshwater Fish Bacteria," by A. S. Bogoslowski, article, Canadian Fisherman, vol. 48, no. 7, 1961, p. 34, printed. National Business Publications Ltd., Gardenvale, Quebec, Canada.

Practical Fresh Water Fishing, by Francis E. Sell, 198 pp., illus., printed. Ronald Press Co., 15 E. 26 St., New York 10, N. Y.

FROZEN FOOD:

"AFDOUS Frozen Food Code," article, Quarterly Bulletin, vol. 26, no. 1, January 1962, pp. 25-42, printed, single copy $1.00. Association of Food and Drug Officials of the United States, c/o State Department of Health, Austin 1, Texas. The Frozen Foods Code was adopted by the Association of Food and Drug Officials of the United States (AFDOUS) in June 1961 and is designed to be used as a guide or, with the addition of legal language and penalties, may be adopted in part or in its entirety as regulations or law. Contains sections on definitions, frozen food, construction and layout of frozen food plants, design and construction of frozen food processing equipment, operating practices for the commercial manufacture of frozen food, transportation, warehousing, and retail.

GERMANY:

Die Dokumentationsgrundlagen der Forschungsstelle--Stand: Ende 1961 (Basic Bibliography of the Research Agency--Year Ending 1961), No. 1/6, 50 pp., processed in German. Forschungsstelle fur Fischereiwirtschaft, Parkstrasse 50, Bremen, Germany, March 1962.

Einweihung der Bundesforschungsanstalt fur Fischerei am 1. Juni 1962 (Dedication of the Federal Institute for Fishery Research on June 1, 1962), by P. F. Meyer-Waarden, Special Issue, Archiv fur Fischereiwissenschaft, vol. 13, supplement 1, May 1962, 156 pp., illus., printed in German. Herausgegeben von der Bundesforschungsanstalt fur Fischerei, Hamburg, Germany. (Available from Westliche Berliner Verlagsgesellschaft Heenemann KG, Berlin-Wilmersdorf, Germany.)

Einweihung der neuen Bundesforschungsanstalt fur Fischerei in Hamburg-Altona, 1. Juni 1962 (Dedication of the New Federal Institute for Fishery Research in Hamburg-Altona on June 1, 1962), Special Issue, Allgemeine Fischwirtschaftszeitung, no. 21, May 1962, 48 pp., illus., printed in German. Verlag Carl Th. Gorg, P. O. Box 406, Bremerhaven F., Germany.

The Fishing Industry of the Federal Republic of Germany, by P. F. Meyer-Waarden, 88 pp., illus., printed, DM4 (US$1). Land- und Hauswirtschaftlicher Auswertungsdienst e. V., Heerstr. 124, Bad Godesberg, Germany, 1961. (Available from Messrs. Hans Meister KG, Postfach 444, Kassel, Germany.) This survey of the fishing industry of Germany covers four major topics: the natural conditions, structure, economic importance, and promotion of the fishing industry. The first discusses formation of the coast, areas of the sea fishery and fresh-water fishery, and transport channels from the fishing grounds to the consumers. The second includes diagrams, charts, and illustrations of different types of sea fishery.

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ports and markets, preparation and processing of fish, and fish trade. The section on economic importance is made up of statistical tables. The last section deals with the organization of the fishery administration, fishery policy, legislation and protection, and education and economic advisory service.

HERRING:

"Aktuellt om Skarpsillundersokningar" (Present Situation Concerning Sprat Investigations), by Armin Lindquist, article Svenska Vastkustfiskaren, vol. 32, no. 3, February 10, 1962, pp. 56-57, illus., printed in Swedish. Svenska Vastkustfiskarnas Centralforbund, Goteborg, Sweden.

"Fabrikksildfisket ved Island" (The Herring Fishery off Iceland), by Harald Kaarstad, article, Konkylien, vol. 6, no. 1-2, December 1961, pp. 7-10, 26-28, illus., printed in Norwegian with English summary. Stord Marin Industri A. S., Bergen, Norway.

Measurement of the Viscosity of Herring Solubles, by W. A. B. Thomson and others, Circular No. 21, 5 pp., illus., processed. Fisheries Research Board of Canada, Technological Station, Vancouver, B. C., Canada, April 1958.

"Sildeinnsiget 1962" (Herring Detection 1962), by Finn Devold, article, Fiskets Gang, vol. 48, no. 17, April 26, 1962, pp. 255-257, illus., printed in Norwegian. Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

"Sildeundersokelser i Norskehavet med F/F Johan Hjort, 5.-17. desember 1961" (Herring Research in the Norwegian Sea with the Research Vessel Johan Hjort, December 5-17, 1961), by Ole J. Ostvedt, article, Fiskets Gang, vol. 48, no. 17, April 26, 1962, p. 258, illus., printed in Norwegian. Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

Study on Desoxypentose Nucleic Acid of Herring Spermatozoa by Diffusion Measurement, by Kojiro Iso and Itaru Watanabe, Report No. 59-14632, 1959, 15 pp., printed, microfilm $2.40, photocopy $3.30. (Translated from Nihon Kagaku Zasshi, vol. 78, no. 9, 1957, pp. 1268-1272.) Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

INDONESIA:

Scientific Facilities and Information Services of the Republic of Indonesia, by John O. Sutter, Pacific Scientific Information No. 1, 137 pp., illus., printed, $1. The Manager, Pacific Scientific Information Center, Bishop Museum, Honolulu 17, Hawaii, 1961.

INTERNATIONAL COMMISSIONS:

(International North Pacific Fisheries Commission) Annual Report, 1960, 123 pp., illus., printed. International North Pacific Fisheries Commission, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada, 1961. This is the seventh consecutive annual report of the International North Pacific Fisheries Commission, established by a Convention between Canada, Japan, and the United States on June 12, 1953, for the purpose of promoting and coordinating the necessary scientific studies and to recommend the required conservation measures in order to secure the maximum sustained productivity of fisheries of joint interest. Contains a summary account of the annual meeting of the Commission held in Vancouver, B. C., Canada, November 7-11, 1960; summary of administrative activities during the year; and progress reports on research conducted by the member governments under the Commission's program.

(International North Pacific Fisheries Commission) Proceedings of the Eighth Annual Meeting, 1961, Parts 1 and 2, 70 and 314 pp., respectively, processed. International North Pacific Fisheries Commission, 6640 N. W. Marine Dr., Vancouver 8, B. C., Canada. Part 1 covers the agenda, list of participants, minutes of sessions, report of the Committee on Finance and Administration, and the administrative report for 1961. The auditors' report for the fiscal year ended June 30, 1961, appears in the appendix. Part 2 consists of the report of the Committee on Biology and Research for 1961. It contains numerous appendices covering, among other items, reports of various sub-committees.

ITALY:

Annuario Statistico della Pesca e della Caccia, 1961 (Annual Statistics of Fish and Game, 1961), vol. 9, 1962, 182 pp., illus., printed in Italian. Instituto Centrale di Statistica, Via C. Balbo, 16 - Rome, Italy. Includes data on 1960 landings of fish and shellfish, sales and prices by species, number and types of vessels engaged in fishing, etc.

JAMAICA:

"Fisheries Development in Jamaica--A Progress Report," by A. G. Kirton, article, West Indies Fisheries Bulletin, no. 6, November-December 1961, pp. 10-15, processed. Ministry of Natural Resources and Agriculture, Federal House, Port of Spain, Trinidad, West Indies. Discusses progress made by the development program undertaken by the Fisheries Division of the Ministry of Agriculture and Lands in Jamaica in both marine and fresh-water or inland fisheries. Deals with fishing boats, fishing methods, fish-culture research, and extension work.

JAPAN:

Bulletin of the Hokkaido Regional Fisheries Research Laboratory, no. 24, March 1962, 212 pp., illus., printed. Hokkaido Regional Fisheries Research Laboratory, Yoichi, Hokkaido, Japan. Contains the following articles: "Studies on the Age and Growth of Crustacea," by Hiroshi Kurata; "An Ecological Study of Laminaria angustata Kjellman on the Coast of Hidaka Prov., Hokkaido," by Yoshio Hasegawa; "The Relation Between the Size of Mesh of Salmon Gill Net and the Length of Salmons in the Catches," by Mitsuo Konda; "The Investigation of Salmon Shark as a Predator on Salmon in the North Pacific, 1960," by Osamu Sano; "On the Distribution of Zoea Larvae of King Crab, Paralithodes camtschatica, in the Southeastern Bering Sea in 1960," by Isamu Takeuchi; "Histological Studies on Ovarian Eggs of Herring, Clupea pallasi, with Special Reference to So-called 'Shiniko' (Abnormal Eggs)," by Rikiichi Ishida, Takeo Sasaki, and Setsuko Arita; "Studies on the Bound Water in Fish Muscle. A New Method of Bound Water Determination and Some Application Thereof to Fish Muscle," by Hiroshi Oshima; "Studies on the Freezing Technique of Alaska Pollack in Bering Sea for the Material of Fish Sausage and 'Kamaboko'," by

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Shu Tanaka and others; "Studies on Freezing and Refrigeration of Marine Products. Part II. On Drip and Heat Juice Loss in Frozen Cod Fillets," by Kaoru Tamoto and Shu Tanaka; "Studies of Muscle of Aquatic Animals. I--On the Relation of Protein Solubility to Setting-Forming Ability," by Kaoru Tamoto and Toru Fukumi.

"Le Developpement de la Grande Peche Industrielle Japonaise" (The Development of the Large Japanese Commercial Fishing Industry), by F. Doumenge, article, La Peche Maritime, vol. 41, no. 1008, March 1962, pp. 147-155, illus., printed in French. La Peche Maritime, 190, Boulevard Haussmann, Paris, France.

JAWFISH:
Notes on the West Atlantic Jawfishes, OPISTHOGNATHUS AURIFRONS, O. LONCHURUS and GNATHYPOPS BERMUDEZI, by James E. Bohlke and Lowell P. Thomas, Contribution No. 346, 14 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Carribbean, vol. 11, no. 4, December 1961, pp. 503-516.) Marine Laboratory, University of Miami, #1 Rickenbacker Causeway, Miami 49, Florida.

JELLYFISH:
"Synopsis of the Medusae of the World," by L. P. Kramp, article, Journal of the Marine Biological Association of the United Kingdom, vol. 40, 1961, 469 pp., printed, $20. Marine Biological Association of the United Kingdom, Cambridge University Press, 200 Euston Rd., London NW1, England.

LOBSTER:
"Le Bandage des Pinces de Homards" (Securing the Claws of Lobsters), article, La Peche Maritime, vol. 41, no. 1008, March 1962, pp. 156-157, illus., printed in French. La Peche Maritime, 190, Boulevard Haussmann, Paris, France.

MACKEREL:
"Untersuchungen uber die Biologie der Makrele (Scomber scombrus L.) in der Nordsee" (Research on the Biology of the Mackerel (Scomber scombrus L.) in the North Sea), by Erdal Aker, article, Berichte der Deutsche Wissenschaftliche Kommission fur Meeresforschung, N. F., vol. 16, no. 2, 1961, pp. 105-128, illus., printed in German with English summary. Deutsche Wissenschaftliche Kommission fur Meeresforschung, E. Schweizerbart'sche Verlagsbuchhandlung (Nagele u. Obermiller), Stuttgart W., Germany.

MALAYA & SINGAPORE:
Scientific Facilities and Information Services of the Federation of Malaya and State of Singapore, by John O. Sutter, Pacific Scientific Information No. 2, 51 pp., illus., printed, 50 cents. The Manager, Pacific Scientific Information Center, Bishop Museum, Honolulu 17, Hawaii, 1961.

MANAGEMENT AIDS:
Improving Your Product's Value, by Robert E. Holmes and Thomas M. Trainer, Management Aids, No. 140, 4 pp., printed. Small Business Administration, Washington 25, D. C., May 1962. Discusses steps small businessmen can follow as they seek to improve the value of their products. Among such steps are determining what is "value" in a product, bypassing the pitfalls in judging value, deciding the effect you want the value improvement to have on customers, looking for new ideas, evaluating new ideas, tooling up to make the improved product, and keeping ahead of the demand for value. Points out that an owner-manager can increase his chances for success by having several improvement ideas in various stages of action. Such a procedure also helps him to inject current marketing information into his value improvement projects.

MARINE BORERS:
Destructive Marine Borers, by F. A. McNeill, Australian Fisheries Leaflet No. 4, 4 pp., illus., printed. (Reprinted from Fisheries Newsletter, vol. 20, no. 5.) Fisheries Newsletter, Commonwealth Fisheries Office, Department of Primary Industry, Canberra, Australia.

MARINE ORGANISMS:
Relationships of Some Marine Organisms of the Northeast Pacific to Water Temperatures, Particularly During 1957 Through 1959, by John Radovich, Fish Bulletin No. 112, 62 pp., illus., printed. California Department of Fish and Game, Printing Division, Documents Section, Sacramento 14, Calif., 1961.

MARINE SCIENCE:
Bulletin of Marine Science of the Gulf and Caribbean, vol. 12, no. 1, March 1962, 168 pp., illus., printed, $2. Institute of Marine Science, University of Miami, 1 Rickenbacker Causeway, Virginia Key, Miami 49, Fla. Contains, among others, the following articles: "Seasonality of Fishes on a South Florida Shore," by Victor G. Springer and Andrew J. McErlean; and "The Biology of the Flyingfish, Hirundichthys affinis (Gunther)," by John B. Lewis, J. K. Brundritt, and A. G. Fish.

MARKETING:
Selling Meats and Seafoods to the Armed Forces, 16 pp., illus., processed. Headquarters, Defense Subsistence Supply Center, 226 W. Jackson Blvd., Chicago 6, Ill., April 1962. Gives a brief history of the Defense Subsistence Supply Center (DSSC), and describes how it buys food for the Armed Forces and how one may qualify as a potential supplier. Also includes a listing of meats and seafoods purchased by the DSSC, a map showing location of supply centers, and samples of various forms used by the organization.

MINK RATIONS:
"Feeding of Raw Carp," by Phil J. Mingo, article, National Fur News, vol. 34, no. 4, May 1962, p. 13, printed. Broyles, Allebaugh & Davis, Inc., 200 Clayton St., Denver 6, Colo. Use of special high-protein supplements, along with fortified cereals, allows ranchers in many areas to use large quantities of products that are locally abundant and low priced. One of these products is carp, or other rough fish fed raw.

"Fish in the Mink Ration," by Walter G. Jones, article, National Fur News, vol. 34, no. 4, May 1962, pp. 11, 30, 33, illus., printed. Broyles, Allebaugh & Davis, Inc., 200 Clayton St., Denver 6, Colo. In the past 10-15 years fish and fishery byproducts have become an increasingly important staple in the rations of ranch mink. Discusses the use of fish in mink food including species of fish, source, and amounts used; problems encountered, and research being conducted.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

MISCELLANEOUS:

Annual Report of the Board of Regents of the Smithsonian Institution--Showing the Operations, Expenditures, and Condition of the Institution for the Year Ended June 30, 1960. Publication 4435, 87th Congress, 1st Session, House Document No. 9, Part 2, 615 pp., illus., printed. Smithsonian Institution, Washington 25, D. C. Includes, among others, the following reports: "Photography of the Ocean Floor," by A. S. Laughton; "History of a Tsunami" (the experiences of some fishermen in a seismic sea wave), by Elliott B. Roberts; "Luminescence in Marine Organisms," by J. A. C. Nicol; and "Problems Involved in the Development of Clam Farms," by Harry J. Turner, Jr.

MOTHER-OF-PEARL:

"42 pc Fall in MOP Shell Take," article, Fisheries Newsletter, vol. 21, no. 5, May 1962, pp. 17-18, illus., printed. Commonwealth Fisheries Office, Dept. of Primary Industry, Canberra, Australia. Contains statistics of Australian production of mother-of-pearl (MOP) shell during 1961. Includes tables showing MOP and trochus production, 1957-61; exports of MOP and trochus shells; exports of all shell (excluding re-exports); vessels and men employed, 1957-61; and labor force, 1961.

NAVIGATION:

United States Coast Pilot 1--First Supplement, Sixth (March 26, 1960) Edition, 8 pp., printed. Coast and Geodetic Survey, U. S. Department of Commerce, Washington 25, D. C., January 6, 1962. Changes through January 6, 1962.

United States Coast Pilot 2--First Supplement, Sixth (September 10, 1960) Edition, 7 pp., printed. Coast and Geodetic Survey, U. S. Department of Commerce, Washington 25, D. C., January 6, 1962. Changes from date of edition to Notice to Mariners 1 of January 6, 1962.

United States Coast Pilot 4--Second Supplement, Atlantic Coast, Cape Henry to Key West, Sixth (September 12, 1959) Edition, 12 pp., printed. Coast and Geodetic Survey, U. S. Department of Commerce, Washington 25, D. C., January 6, 1962. Changes from date of edition through Notice to Mariners 1 of January 6, 1962.

United States Coast Pilot 7--Third Supplement, Pacific Coast, California, Oregon, Washington, and Hawaii, Eighth (February 21, 1959) Edition, 22 pp., printed. Coast and Geodetic Survey, U. S. Department of Commerce, Washington 25, D. C., January 6, 1962. Changes from date of edition through Notice to Mariners 1 of January 6, 1962.

United States Coast Pilot 8--Pacific Coast, Alaska--Dixon Entrance to Cape Spencer, Eleventh Edition, 246 pp., printed, $2.50. U. S. Department of Commerce, Coast and Geodetic Survey, Washington 25, D. C., January 6, 1962.

United States Coast Pilot 9--Seventh Supplement, Alaska, Cape Spencer to Arctic Ocean, Sixth (November 6, 1954) Edition, 36 pp., printed. Coast and Geodetic Survey, U. S. Department of Commerce, Washington 25, D. C., January 6, 1962. Changes through January 6, 1962.

NETS:

"Farg--Fisklighet. IV" (Color--Fishability. IV), by G. Molin, article, Ostkusten, vol. 33, no. 5, 1961, pp. 21-25, illus., printed in Swedish. Sveriges Kust - och Havsfiskare, Hudiksvall, Sweden.

Rapports et Proces-Verbaux des Reunions (International Fisheries Convention of 1946, Committee on Mesh Difficulties, Report of the Scientific Sub-Committee, presented at the Seventh Meeting of the Permanent Commission, November 1958), vol. 151, 39 pp., illus., printed, Kr. 20 (US$1.75). Conseil Permanent International pour l'Exploration de la Mer (International Council for Exploration of the Sea), Charlottenlund Slot, Denmark, November 1960. This report is in two parts. Part I, the edited version of which is reproduced here, deals with mixed fisheries, that is, fisheries in which trawls with meshes smaller than those specified by the 1946 Convention are used for the purpose of capturing unprotected species listed in Article 6 of the Convention, but in which varying quantities of protected species listed in Annex II of the Convention may also be caught. The statistics for these fisheries up to the end of 1957 are presented, together with an assessment, so far as is possible on the data available, of the significance of the by-catch of protected species in relation to the fisheries for those species prosecuted in the same area with Convention mesh sizes.

NIGERIA:

Report on the Fisheries of Nigeria, 1961, by A. R. Longhurst, 57 pp., illus., processed. Federal Fisheries Service, Ministry of Economic Development, Lagos, Nigeria. The result of a fact-finding survey of Nigerian fisheries. It includes data both on the status and development of the fisheries themselves and of research and investigation programs undertaken by the various governmental agencies concerned with fisheries. Covers the organization of fisheries administration; inventory of facilities; survey of fish requirements, consumption, and importation; account of fisheries resources available to Nigeria. Also covers a survey of indigenous marine and fresh-water fisheries; development of the present mechanized fleet; fisheries development programs; and management, investigational, and research programs. Includes a register of trawlers operating out of Lagos, as of January 1, 1961; landing statistics, Lagos trawlers, 1959-1960; and a bibliography of literature relevant to Nigerian fisheries investigations.

NORWAY:

Beretning fra Fiskeridirektoratets Havforskningsinstitutt, 1958-59 (Report from the Sea Research Institute of the Fisheries Directorate, 1958-59), by Gunnar Rollefsen, 50 pp., illus., printed in Norwegian. (Reprinted from Arsberetning vedkommende Norges Fiskerier, no. 2, 1959.) A.s. John Griegs Boktrykkeri, Bergen, Norway, 1961.

"Forekomst av egg og yngel av fisk i vest- og nordnorske kyst- og bankfarvann varen 1961" (The Occurrence of Egg and Larvae of Fish in the Western and Northern Norwegian Coast and Seaways During 1961), by Kr. Fr. Wiborg, article, Fiskets Gang, no. 11, March 15, 1962, pp. 161-164, illus., printed in Norwegian. Fiskeridirektoratet, Bergen, Norway.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

"A Industria de Conservas de Peixe Norveguesa em 1961" (Norwegian Fish Canning Industry in 1961), by Olva Omland and Trygve Oree, article, Conservas de Peixe, vol. 16, no. 192, March 1962, pp. 23-24, illus., printed in Portuguese. Sociedade Astoria, Lda., Requeirao dos Anjos, 68, Lisbon, Portugal.

"Les Peches Norvegiennes" (Norwegian Fisheries), by M. Hohs. Sellaeg, article, France Peche, vol. 7, no. 59, February 1962, pp. 39-42, illus., printed. France Peche, Boite Postale 179, Lorient (Morbihan), France.

OCEANOGRAPHY:

Reference Sources for Oceanographic Station Data (Provisional), by National Oceanographic Data Center, Catalog Series, Publication C-1, 201 pp., printed, $2.00. U. S. Navy Hydrographic Office, Washington 25, D. C. This publication is an advance provisional printing of a catalog of reference sources for oceanographic station data and is intended for limited distribution; a fully edited first edition will follow. The National Oceanographic Data Center receives, compiles, processes, and preserves worldwide oceanographic station data from all available sources, serves as a central repository, and disseminates these data for use by the scientific community and the general public. This publication has been prepared as a catalog of the Center's holdings of source material containing oceanographic station data and to provide users of the data with the necessary bibliographic information on source material used.

Serial Atlas of The Marine Environment--Sea Surface Temperature Regime in the Western North Atlantic, 1953-1954, by Robert L. Pyle, Folio 1, 33 pp., illus., printed, $7.50. Serial Atlas of the Marine Environment, American Geographical Society, Broadway at 156th St., New York 32, N. Y. A marine atlas based upon a study of sea surface temperature observations in the western North Atlantic for the years 1953-54. The objective of the study was to evaluate these data for environmental research and to develop techniques for converting them into meaningful descriptions of the surface temperature regime. The plates in this folio illustrate the methods of analysis which have been developed. The study demonstrates how this material can bring out detailed patterns not attainable otherwise, points out features of the data which are pertinent to their usefulness for environmental research, and describes pronounced differences in temperature regime between the particular years 1953 and 1954. Subsequent folios of the Atlas will study other aspects of the marine environment, such as biological, geological, physical, or chemical.

OCEAN PERCH:

"Zum Rassenproblem beim Rotbarsch--Rotbarschformen aus dem zentralen nordatlantik (zwischen den Faroern und Gronland-West)" (The Problem of Race in the Ocean Perch--Shape of the Ocean Perch from the Central North Atlantic, Between the Faroe Islands and West Greenland), by Adolf Kotthaus, article, Berichte der Deutsche Wissenschaftliche Kommission fur Meeresforschung, N. F., vol. 16, no. 1, 1961, pp. 18-50, illus., printed in German. Deutsche Wissenschaftliche Kommission fur Meeresforschung, E. Schweizerbart'sche Verlagsbuchhandlung, (Nagele u. Obermiller), Stuttgart W., Germany.

OUTBOARD MOTORS:

The Contribution by the Outboard Motor to the Mechanization and Development of the Fishing Industry, by Ernst Ott, 6 pp., printed. (Reprinted from Proceedings of the Gulf and Caribbean Fisheries Institute, Thirteenth Annual Session, pp. 163-168, November 1960.) Outboard Marine International S. A., P. O. Box 830, Nassau, Bahamas. Describes the vast potential for the outboard motor in the fishing industry today. Explains how the mechanization of fisheries through the medium of the outboard motor has improved the economy and raised the standard of living in more than a score of countries throughout the world during the past six years.

Outboard Power Replaces Sails and Oars, 3 pp., illus., printed. (Reprinted from Fishing News International, October 1961.) Outboard Marine International S. A., P. O. Box 830, Nassau, Bahamas. Explains how the outboard motor is helping to provide more food for a hungry world by means of increased production in the fishing industry. Also discusses the donations of outboard motors to underdeveloped countries, the wide power range of outboards manufactured today, and methods being employed for the education of the fishermen in mechanization.

Outboards at Work, by William H. Taylor, 62 pp., illus., printed. Outboard Marine International S. A., Box 830, Nassau, Bahamas. Portrays, with numerous photographs, the extensive use and versatility of the outboard motor. Chapter 2 describes the use of the outboard motor in the commercial fisheries. According to the author, "Their suitability for most kinds of commercial fishing has spread in two directions. On the one hand, the outboard has taken the place of the oar, the paddle and the sail among small-boat fishermen who formerly depended on those means of getting to and from the fishing grounds and for hauling their nets and drags. On the other hand, the outboard is taking the place, in larger boats, of inboard engines. In both fields, it is bringing in millions of pounds of fish that, without the outboard motor, would not have been caught to feed the world's people, and it is putting more money into the pockets of fishermen who could not make as much by their older methods."

OYSTERS:

Oyster Farming in the Maritimes, by J. C. Medcof, 158 pp., illus., printed, $1.75. Fisheries Research Board of Canada, Ottawa, Canada. (Available from Queen's Printer and Controller of Stationery, Ottawa, Canada.) Contains information on oyster farming, which is the practice of one or more of the many methods of improving the quality or increasing the quantity of oysters produced. Outlines the methods oyster farmers should follow, warns against the pitfalls they will likely encounter, and gives information on marketing and storing. All phases of the industry are covered, and are illustrated by photographs or drawings.

A System of Oyster Culture on Floating Shellfish Parks, by M. Nikolic and I. Stojnic, GFCM, Studies and Reviews No. 18, 17 pp., illus., processed. GFCM Secretariat, Food and Agriculture Organization of the

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United Nations, Viale delle Terme di Carcalla, Rome, Italy, March 1962. An account of the ecological conditions and historical data on the development of shellfish culture in Limski Fjord located in Istria, Yugoslavia. Describes equipment used, rearing-places, and the old and new systems of oyster culture pointing out the advantages of the latter.

PILCHARDS:

The Pilchard of South West Africa (SARDINOPS OCELLATA)--Age Studies and Age Composition of SARDINOPS OCELLATA in the Commercial Catches, 1952-1958, and a New Method for the Determination of the Age of SARDINOPS OCELLATA, by O. Nawratil, Investigational Report No. 2, 43 pp., illus., printed. Administration of South West Africa, Marine Research Laboratory, Windhoek, South-West Africa.

POLAND:

"Les Peches Polonaises" (The Fisheries of Poland), article, France Peche, vol. 7, no. 60, March 1962, pp. 19-21, illus., printed in French. France Peche, Boite Postale 179, Lorient (Morbihan), France.

PORTUGAL:

"As Industrias de Conserva e da Pesca e Seus Multiplos Problemas" (The Canning and Fishing Industries and Their Multiple Problems), by Mario de Sousa, article, Conservas de Peixe, vol. 16, no. 192, March 1962, pp. 15, 17-18, 32, printed in Portuguese. Sociedade Astoria, Lda., Requeirao dos Anjos, 68, Lisbon, Portugal.

"As Pescarias no Algarve--Subsidios para a sua Historia" (The Fisheries of Algarve--Subsidies in Their History), by Alberto Iria, articles, Conservas de Peixe, vol. 16, no. 191, February 1962, pp. 31-33; and vol. 16, no. 192, March 1962, pp. 27-31, printed in Portuguese. Sociedade Astoria, Lda., Requeirao dos Anjos, 68, Lisbon, Portugal.

PRESERVATION:

"La Exportacion Espanola de Conservas y Semiconservas" (Spanish Exportation of Canned and Semi-Preserved Fishery Products), article, Industria Conservera, vol. 28, no. 273, March 1962, pp. 62-64, illus., printed in Spanish. Industria Conservera, Calle Marques de Valladares, 41, Vigo, Spain. Presents regulations for canning fishery products for export.

REFRIGERATED TRANSPORTATION:

Proyecto de Tratamiento, Conservacion y Transporte por el Frio, de Pescado y Productos de la Pesca (Project for Treatment, Conservation, and Refrigerated Transportation of Fish and Fishery Products), by Sergio Carvajal M., Divulgacion Pesquera Cartilla No. 1, 16 pp., processed in Spanish. Departmento de Pesca y Caza, Ministerio de Agricultura, Direccion de Agricultura y Pesca, Santiago, Chile, January 1962.

REFRIGERATION:

Institut International du Froid (International Institute of Refrigeration), 1961-62 supplement au Bulletin de l'Institut International du Froid, 254 pp., illus., printed in French and English. Institut International du Froid, 177, Boulevard Malesherbes, Paris (17e), France, 1961. Discusses the meeting of Commission 7 held at Padua, Italy, from June 1-3, 1961, on Refrigerated Transport by Land. Includes, among others, the following reports: "Chilled-air Distribution in Refrigerated Trailers," by P. R. Achenbach; "Notes on Testing the Insulation of Refrigerated Transport Equipment by the Cooling Method," by F. L. Levy; "Performance Tests of Thermostatic Control on Iced and Mechanically Refrigerated Rail Cars," by W. H. Redit; "The Transport of Quick-Frozen Foods in Great Britain in Highly Insulated Containers," by T. A. Eames; and "Transport of Foodstuffs Under Controlled Temperature in Rail-Road Trailers in France," by M. Chevallier. Also covers the meeting of Commission 5 held at Budapest, Hungary, from August 23-27, 1961, on Construction of Cold Stores, Quick Freezing, Insulation, Fruit Packing Stations. Includes, among others, the following reports: "Survey of Refrigeration Industries and Plants in Hungary," by P. Robert; "Prefabricated Single-Storied Cold-Stores," by V. I. Safonov; "Study of a Type of Freezing-Tunnel," by E. Gomez; "Deep-Freezing in Tunnels and Means to Obtain the Most Rapid Results Economically," by G. Ganger; "Practical Results of Quick-Freezing in Tunnels," by A. Lagoutte and J. Dalas; "Appreciation of the Quality of Frozen Products," by G. Perticara; "The Importance of Equilibrium Relative Humidity in the Cold Storage of Foodstuffs," by G. Torok; "Thermal Insulating Materials Used in the Construction of Cold-Stores," by N. T. Kudryashov; "Some Applications of Polystyrene for the Insulation of Cold-Stores," by J. Pau; "Insulation of Cold-Stores with Single Layer of Expanded Polystyrene," by J. Toledano; and "Insulation of Cold Rooms--New Insulation Materials and New Insulating Processes in Cold-Stores," by Ch. Fontanel.

RESEARCH VESSEL:

"Design of our New Research Vessel," by Jonathan Lieby, article, Oceanus, vol. 8, no. 4, June 1962, pp. 2-13, illus., printed. The Woods Hole Oceanographic Institution, Woods Hole, Mass. Describes the new oceanographic research ship now under construction by the Woods Hole Oceanographic Institution which will be the first major vessel designed and constructed for oceanographic service by a private laboratory in the United States since the 142 ft. ketch "Atlantis" in 1931. It has been designed to do effective all-weather oceanographic research from the fringe ice to the tropics and will be able to accommodate more than one scientific discipline on a given cruise. Detailed diagrams of the vessel are included.

SALMON:

"Nekotorye Dannye o Biologii i Promysle Lososiei v Tikhom Okeane" (Some Data on the Biology and Fishing of Salmon in the Pacific), by P. A. Dvinin, article, Rybnoe Khoziaistvo, vol. 35, no. 12, 1959, pp. 7-13, illus., printed in Russian. VNIRO Glavniproekta, pri Gosplanie SSSR, Moscow, U.S.S.R.

Pacific Salmon, OTS 60-51139, 288 pp., illus., printed, $3. The Israel Program for Scientific Translations, 1961. (Available from The Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.) Contains translations of selected articles from various Soviet periodicals on Pacific salmon. The following articles are included: "Adaptive Features of Young Pacific Salmon," by V. V. Abramov;

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"Migrations and Morphometrical Characteristics of the West Sakhalin Pink Salmon," by P. A. Dvinin; "The Type of Dynamics of Stocks and the Character of Spawning of the Chum and the Pink Salmon in the Amur River," by G. V. Nikol'skii; "Morphological Differences Between the Summer and the Autumn Chum Salmon," by L. D. Grigo; "One of the Factors of Prespawning Mortality of Pink Salmon in Rivers," by A. P. Makeeva; "Histological Study of Gonads of the Pink Salmon and the Summer Chum," by S. A. Ivanova; "Ecological and Morphological Characteristics of the Development of the Amur Autumn Chum Salmon," by N. N. Disler; "Pattern of Development of Summer Chum, Masu, and Pink Salmon," by S. G. Soin; "High-Seas Salmon Fisheries in the North Pacific," by P. A. Moiseev; "On the Artificial Raising of the Water Level in the Spawning Grounds of Far Eastern Salmon," by I. S. Vasil'ev; "Condition of Stocks of the Amur Salmon and Causes of the Fluctuations in Their Abundance," by A. G. Smirnov; "Changes in Chemical Composition of the Body of Red (Sockeye) Salmon," by I. V. Kizevetter; "Data on the Biology of the Amur Chum Salmon," by E. A. Lovetskaya; "Some Problems of the Biology and Population Dynamics of Pink Salmon," by A. G. Kaganovskii; "Results of Tagging Pacific Salmon in the Gulf of Kamchatka," by K. A. Lyamin; "Food of Pink Salmon at the End of Marine Stage of Migration," by N. F. Pushkareva; "Changes in the Blood Composition of Salmon During the Spawning Migration," by N. M. Lysaya; "Food of Pacific Salmon in Kamchatka Waters," by A. I. Synkova; "Morphology and Rate of Embryonic Development of Pacific Salmon," by M. Ya Ievleva; "The Osmoregulatory Ability of Young Autumn Chum Salmon Migrating Downstream," by V. Ya Levanidov; "Physical and Mechanical Properties of Pink Salmon," by L. M. Men'shutina; "Data on the Biology of Young Silver Salmon During the Marine Period of Live," by I. A. Piskunov; "Food of Downstream Migrant Young Summer Chum Salmon and Pink Salmon in the Amur Tributaries," by V. Ya Levanidov and I. M. Levanidova.

"Serological Differentiation of Populations of Sockeye Salmon, Onchorhynchus nerka," by G. J. Ridgway, J. E. Cushing, and G. L. Durall, article, Bulletin, International North Pacific Fisheries Commission, no. 3, 1961, pp. 5-10, illus., printed. International North Pacific Fisheries Commission, 6640 NW. Marine Dr., Vancouver 8, B. C., Canada.

"Some Problems in the Marking of Salmonids," by Donald H. Fry, article, Pacific Marine Fisheries Commission Bulletin, no. 5, 1961, pp. 77-83, illus., printed. Pacific Marine Fisheries Commission, 741 State Office Bldg., 1400 SW. 5th Ave., Portland 1, Oregon.

"Survival and Behavior of Sockeye Salmon Fry Migrating into Brooks Lake, Alaska," by Wilbur L. Hartman, Charles W. Strickland, and David T. Hoopes, article, Transactions of the American Fisheries Society, vol. 91, no. 2, April 1962, pp. 133-139, illus., printed. Secretary, American Fisheries Society, P. O. Box 483, McLean, Va.

SALTED FISH:

"Salted and Dried Fish. III--Washing of Used Salt," by M. K. Rowan, article, Annual Report, Fishing Industry Research Institute, vol. 13, 1960, pp. 12-13, printed. University of Cape Town, Rondebosch, C. P., South Africa.

SARDINES:

Biologia y Tecnologia de las Sardinas Cubanas. I--HARENGULA PENSACOLAE CUBANA Rivas y HARENGULA HUMERALIS (Cuvier) (Biology and Technology of the Cuban Sardines. I--Harengula pensacolae cubana Rivas and Harengula humeralis (Cuvier)), by Jose A. Suarez Caabro, Pedro Pablo Duarte Bello, and Julia Alvarez Reguera, no. 19, 87 pp., illus., printed in Spanish. Instituto Cubanc de Investigaciones Tecnologicas, Apartado 4026, Via Blanca y Carretera Central, Havana, Cuba, December 1961.

Fishery Biology of the Sardine, SARDINOPS MELANOSTICTA (T. & S.) in the Waters Around Japan, Bulletin No. 9, 227 pp., illus., printed in Japanese. Japanese Fisheries Agency, Japanese Sea Regional Fisheries Research Laboratory, Niigata, Japan, 1961.

"Refrigeration et Pre-Conservation des Sardines a Bord du Bateau de Peche" (Chilling of Sardines in Refrigerated Seawater on Fishing Boats), by T. Le. Berre, article, Science et Peche, no. 91, March 1961, 5 pp., printed in French. L'Institut Scientifique et Technique des Peches Maritimes, 59 Ave. Raymond-Poincare, Paris 16e, France.

SEAWEED:

Annual Report for 1961, 21 pp., printed. Institute of Seaweed Research, Inveresk, Midlothian, Scotland. Discusses developments in the Scottish and foreign seaweed byproducts industry during 1961, and the Institute's information and technical assistance services. Also discusses production of alginates from seaweed, use of seaweed meal in animal feedstuffs, and development of fertilizers from seaweed. Includes results of investigations on algal polysaccharides, biochemical studies on seaweeds, nitrogenous constituents of marine algae, chemical composition of marine micro-algae, and a list of publications on seaweed published during 1961.

SHARKS:

"Wanted: Shark Hunters!" by James Wiles, article, Sea Frontiers, vol. 8, no. 2, May 1962, pp. 84-93, illus., printed. Marine Laboratory, University of Miami, 1 Rickenbacker Causeway, Miami 49, Fla. No method for controlling sharks has yet provided complete protection from them or had long-lasting effects. Dyes, air-bubble shields, electronic fields, and off-shore nets are all defensive measures that have been taken. This article discusses the approach of turning defense into offense by seeking methods to eliminate or greatly reduce local shark populations by means of fishing programs. The author feels that through intensive systematic fishing, sharks not only can be captured and destroyed, but also can be made available to scientists for important studies.

SHELLS:

"Water Bottoms Bonanza," by McFadden Duffy, article, Louisiana Conservationist, vol. 14, no. 4, April 1962, pp. 21-24, illus., printed. Louisiana Wild Life and Fisheries Commission, Wild Life & Fisheries Bldg., 400 Royal St., New Orleans, La. A brief description of the operations of the Louisiana shell industry and the industrial uses of shells in

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petroleum, chemicals, Portland cement, lime, chicken feed, concrete masonry units, railroad ballast, as well as all types of base construction for road work, stabilization of bases for air fields, runways, in addition to use in asphalt or plant mix. Shell "fines" are also used in the manufacture of roofing. Dredging of shells, and operation of industries using shells, are multi-million dollar activities in Louisiana. Obtaining shells for industry and the transportation to processing plants offers employment to several thousand people in Louisiana. Processing plants in the State employ additional thousands of persons.

SHRIMP:
"A Cooperative Study of Shrimp and Incidental Fish Catches Taken in Shrimp Fishing Gear in California and Oregon, 1958," by Alfred R. Morgan and Doyle E. Gates, article, Pacific Marine Fisheries Commission Bulletin, no. 5, 1961, pp. 85-106, illus., printed. Pacific Marine Fisheries Commission, 741 State Office Bldg., 1400 SW. 5th Ave., Portland 1, Oreg.

SMALL BUSINESS MANAGEMENT:
Building Sales to Younger Customers, Management Aids No. 80, by S. E. Mahle, 4 pp., printed. Small Business Administration, Washington 25, D. C. This leaflet tells how to build sales to younger customers. It emphasizes the younger group because cultivation of these consumers can mean three things. First, some small marketers can increase their present sales by selling directly to teenagers. Second, other small marketers can increase their sales through the influence that teenagers exert on the family's spending. And third, in some cases, small marketers can build loyalty that will mean increased future sales--sales when these boys and girls grow into the young adult group.

Measuring Your Growth Pattern, Management Aids, No. 141, by Joseph Mullen, 4 pp., printed. Small Business Administration, Washington 25, D. C. Describes methods by which businessmen may measure their growth pattern such as sales growth, production efficiency, rate of return on invested capital, customer turnover, new product development, and personnel growth.

A Survey of Federal Government Publications of Interest to Small Business, 71 pp., printed, 30 cents. Small Business Administration, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Contains information about publications of interest to small business owners. Some of the material listed outlines the help available from Federal agencies. Other publications listed explain, in nontechnical language, the laws which the agencies enforce, and still others present statistical data useful in marketing or specialized information pertinent to particular industries or trades. Most of the publications included were published within the last two years and are all readily available to the small business owner-manager.

SMOKED FISH:
Selected Publications Concerning Smoked Fish, Circular No. 22, 5 pp., processed. Fisheries Research Board of Canada, Technological Station, Vancouver, B. C., Canada, May 1958.

SOUTH AFRICA:
Die sardyn van Suidwes-Afrika (SARDINOPS OCELLATA) (The Sardine of Southwest-Africa--Sardinops ocellata), by O. Nawratil, Research Report No. 2, 39 pp., illus., printed in Afrikaans. Administrasie van Suidwes-Afrika, Marine-Navorsingslaboratorium, Cape Town, South Africa Republic.

SOUTH PACIFIC:
Identifications of Fish Collections from Kapingamarangi, Eastern Caroline Ids. Ifaluk, Western Caroline Islands, Raroia, Tuamotu Archipelago, by Robert R. Rofen, AD-272 133, 118 pp., illus., printed, $10.10. Pacific Science Board, National Research Council, Washington, D. C., Dec. 1961. (For sale by the HQ Armed Services Technical Information Agency, Arlington Hall Station, Arlington 12, Va.)

SOUTH WEST AFRICA:
"The Fishing Industry at Walvis Bay," article, The South African Shipping News and Fishing Industry Review, vol. 17, no. 1, January 1962, pp. 53-109, illus., printed, single copy 40 cents. Odhams Press, South Africa, P. O. Box 2598, Cape Town, South Africa Republic. Describes the growth and present healthy state of the fishing industry of South-West Africa's main seaport, Walvis Bay. Devotes a special article to each of the six pilchard processing factories.

SPAWNING:
Spawning Seasons and Growth of the Code Goby, Gobiosoma robustum (Pisces: Gobidae), in the Tampa Bay Area, by Victor G. Springer and Andrew J. McErlean, Contribution No. 56, 10 pp., illus., printed. (Reprinted from Tulane Studies in Zoology, vol. 9, no. 2, November 10, 1961, pp. 87-98.) Florida State Board of Conservation Marine Laboratory, St. Petersburg, Fla.

SPINY LOBSTERS:
"La Pesca Industrial de la Langosta en Cuba" (Commercial Fishing for Spiny Lobsters in Cuba), by F. de T., article, Puntal, vol. 9, no. 95, February 1962, pp. 12-13, illus., printed in Spanish, 12 pesetas (20 U. S. cents). Puntal, Ramon y Cajal 3, Apartado 316, Alicante, Spain.

SPORT FISH:
Northern Fishes (With Special Reference to the Upper Mississippi Valley), by Samuel Eddy and Thaddeus Surber, 267 pp., illus., printed. The University of Minnesota Press, Minneapolis, Minnesota, 1943.

STICKWATER:
Evaporadores de Agua de Cola (Stickwater Evaporators), by Peter C. J. Molteno, Divulgacion Pesquera Cartilla No. 2, 12 pp., illus., processed in Spanish. Departamento de Pesca y Caza, Ministerio de Agricultura, Direccion de Agricultura y Pesca, Santiago, Chile.

SWORDFISH:
The Swordfish (Xiphias gladius L.), Its Life-History and Economic Importance in the Northwest Atlantic, by S. N. Tibbo, L. R. Day, and W. F. Doucet, Bulletin No. 130, 53 pp., illus., printed, 75 Canadian cents. Fisheries Research Board of Canada, Ottawa, Canada, 1961. (Available from the Queen's Printer, Ottawa, Canada.) A general account is

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given of the life-history of swordfish and the development of a fishery for swordfish in the northwest Atlantic. Special attention is given to the Canadian catch which has increased spectacularly in the last decade from about 2 million pounds in 1949 to nearly 7 million pounds in 1959. The increase is associated with a change in the nature of the fishery from a small boat, inshore operation to the use of long liners and draggers that can operate offshore and over a wide area. The prospects for continued expansion of this important industry are discussed.

TAIWAN:

Taiwan Fisheries Yearbook 1961 Edition, 194 pp., illus., printed in Chinese and English. Department of Agriculture and Forestry, Provincial Government of Taiwan, Taipei, Taiwan, August 1961. Contains statistical tables showing fishermen's organizations and membership, fishermen, status of fishing vessels, status of ice making and cold-storage industries, fisheries production, and quantity of supply and sale of fishery products and their average value at principal fish markets. Also includes data on processed marine products, fish culture area, production of fish fries, number of casualties of fishermen, losses and damage to fishing vessels and gear, fishing activity at principal fishing harbors by type of craft, foreign trade in fishery products, and related information. Most data are for 1960.

TARIFFS AND TRADE:

Operation of the Trade Agreements Program, 13th Report--July 1959-June 1960, TC Publication 51, 255 pp., processed. United States Tariff Commission, Washington 25, D. C., 1962. During the period July 1959-June 1960, the U. S. had trade agreements obligations in force with 43 countries. Of these, 35 countries were contracting parties to the General Agreement on Tariffs and Trade, and 8 were countries with which the United States had bilateral trade agreements. The United States participated in limited trade-agreement negotiations under the General Agreement during this period with Cuba, Belgium, Denmark, West Germany, Japan, the Netherlands, Sweden, the United Kingdom, and Canada. The report describes these negotiations and, for those that were completed, analyzes the changes that they made in the schedules of concessions of the respective countries. Also covers other important developments including the major developments relating to the general provisions and administration of the General Agreement; the actions of the United States relating to its trade agreements program; and the major commercial policy developments in countries with which the United States has trade agreements.

TEREDO BORER:

The General Biology of Teredo (Final Report 1954-1960), by Charles E. Lane, 11 pp., processed. Marine Laboratory, University of Miami, #1 Rickenbacker Causeway, Miami 49, Fla. Presents a narrative account of the research project concerned with teredine borers--the principal findings and their significance. The objectives of the investigation were to define as broadly as possible the principal features of the life history and definitive physiology of the teredine borers. The results and conclusions derived from these studies are included in the papers listed in the section entitled "Publications."

TRADE LISTS:

The Bureau of International Business Operations, U. S. Department of Commerce has published the following mimeographed trade lists. Copies may be obtained by firms in the United States from the Commercial Intelligence Division, Office of Trade Promotion, Bureau of Foreign Commerce, U. S. Department of Commerce, Washington 25, D. C., or from Department of Commerce field offices at $1 each.

Canneries and Frozen Foods--Producers and Exporters--Costa Rica, 5 pp. (April 1962). Lists the names and addresses, size of firms, and types of products handled by each firm. Also contains trade and industry data, and a statistical table indicating the average annual imports of foodstuffs (including fish) during the period 1959-61 and the average percentage of the total imported from the United States.

Canneries--The Netherlands, 13 pp. (April 1962). Lists the names and addresses, size of firms, and types of products handled by each firm. Includes fish canneries and exporters. Also covers basic trade and industry data.

Oils (Animal, Fish and Vegetable)--Importers, Dealers, Producers, Refiners, and Exporters, Italy, 20 pp., processed (April 1962). Lists the names and addresses, size of firms, and types of products handled by each firm. Includes firms dealing in fish and whale oils.

TRAWLING:

"Tralernes Fiske i 1960" (Fish Trawling in 1960), article, Fiskets Gang, vol. 48, no. 10, March 1962, pp. 143-149, illus., printed in Norwegian. Fiskeridirektoratet, Radstuplass 10, Bergen, Norway.

TRAWL NETS:

"Duchalut de Fond a Grande Ouverture Verticale au Chalut Flottant" (From the Bottom Trawl with Large Vertical Opening to the Midwater Trawl), by C. Nedelec, article, Science et Peche, no. 85, July-August 1961, 13 pp., illus., printed in French. L'Institut Scientifique et Technique des Peches Maritimes, 59 Ave. Raymond-Poincare, Paris 16e, France.

"On the Fishing Experiments Conducted with 10-ft. Bean-Trawl Net," by S. E. Deshpande, article, Indian Journal of Fisheries, vol. 7, no. 1, 1960, pp. 174-186, illus., printed. Ministry of Food and Agriculture, New Delhi, India.

TUNA:

Catch Variations in the North Pacific Albacore. 2. Variation in the Amount of Recruitment, by Akira Suda, Report No. 59-18552, 1959, 22 pp., printed, microfilm $2.70, photocopy $4.80. (Translated from Nankai-ku Suisan Kenkyusho Hokoku, no. 10, 1959, pp. 72-87.) Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

On the Migration and the Growth of the Skipjack, KATSUWONUS PELAMIS (Linnaeus) in the Izu and Bonin Sea Areas and the Northeastern Sea Area Along the Pacific Coast of Japan, by Tsuyoshi Kawas-

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aki, Report No. 59-19341, 1959, 34 pp., printed, microfilm $3.00, photocopy $6.30. (Translated from Tohoku Kaiku Suisan Kenkyusho Kenkyu Hokoku, no. 4, 1955, pp. 101-119.) Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

On the Migration and the Growth of the Skipjack, KATSUWONUS PELAMIS (Linnaeus) in the South-Western Sea Area of Japan, by Tsuyoshi Kawasaki, Report No. 59-19342, 1959, 41 pp., printed, microfilm $3.00, photocopy $6.30. (Translated from Tohoku Kaiku Suisan Kenkyusho Kenkyu Hokoku, no. 4, 1955, pp. 83-100.) Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

On the Ovaries of the Skipjack, KATSUWONUS PELAMIS (Linnaeus) Captured in the Fishing Grounds Along the Japanese Coast, by Masakazu Yao, Report No. 59-18563, 1959, 15 pp., illus., printed, microfilm $1.80. (Translated from Tohoku Kaiku Suisan Kenkyusho Kenkyu Hokoku, no. 5, 1955, pp. 43-52.) Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

"A Pesca de Atum-Suas Possibilidades en Angola" (Tuna Fishing - Its Possibilities in Angola), by A. de Oliveira Neves, article, Boletim da Pesca, vol. 12, no. 66, 1960, pp. 79-87, printed in Portuguese. Gabinete de Estudos das Pescas, R. S. Bento 644, Lisbon, Portugal.

On the Stomach Contents of the Skipjack, by Hideyuki Hotta and Toru Ogawa, Report No. 59-19338, 1959, 33 pp., printed, microfilm $3.00, photocopy $6.30. (Translated from Tohoku Kaiku Suisan Kenkyusho Kenkyu Hokoku, no. 4, 1955, pp. 62-82.) Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

Young Tunas Found in Stomach Contents, by Hiroshi Yabe, and others, Report No. 59-18393, 1959, 30 pp., printed, microfilm $2.70, photocopy $4.80. (Translated from Nankai-ku Suisan Kenkyusho Hokoku, no. 8, 1958, pp. 31-48.) Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C.

URUGUAY:

Revista del Instituto de Investigaciones Pesqueras (Journal of the Institute of Fisheries Research), vol. 1, no. 1, 1962, illus., printed in Spanish with English summaries, price in Uruguay 40 pesos or US$3.65, other Western Hemisphere countries and Spain $5.00, and all other countries $6.00. Instituto de Investigaciones Pesqueras, Facultad de Veterinaria, Alberto Lasplaces, 1550, Montevideo, Uruguay. One article deals with the hydrolysis of whale meat. Another article describes the determination of the salinity through the Mohr-Westphal balance and presents four tables of direct conversion from specific weight to salinity.

U.S.S.R.:

"Perspektivy Razvitiia Sovetskogo Rybolovstva v Vodakh Atlantiki" (Prospects of the Development of Soviet Fisheries in the Atlantic Waters), by A. V. Mikheev, article, Rybnoe Khoziaistvo, vol. 35, no. 11, 1959, pp. 3-6, illus., printed in Russian. VNIRO Glavniproekta, pri Gosplanie, SSSR, Moscow, U.S.S.R.

VESSELS:

"Das Kombinierte Fangschiff" (The Combination Fishing Vessel), by C. Birkhoff, article, Hansa, vol. 97, no. 16/17, 1960, pp. 826-831, illus., printed in German. Schiffahrts-Verlag "Hansa", Hamburg, Germany.

Die nordeuropaischen Seefischereifahrzeuge, ihre Entwicklung und ihre Typen (The Development and Types of Marine Fishing Vessels in Northern Europe), by Gerhard Timmermann, Handbuch der Seefischerei Norteuropas, vol. 11, no. 4, 1962, 204 pp., illus., printed in German, DM 79.60 (about US$20.00). E. Schweizerbart'sche Verlagsbuchhandlung (Nagele u. Obermiller), Stuttgart W., German Federal Republic. Contains a short history of ship construction and conditions responsible for the form of the various marine vessels in Northern Europe. Includes data on vessels of Middle-Europe, Scandinavia, and Western Europe, as well as information on vessels needed for whale and seal catches, a listing of types of vessels, and a bibliography. The survey on this subject can only be very general because there isn't sufficient literature available on each individual type of vessel. There were quite a few ships found that date from the days of the Vikings, and there is some historical source material available. Not until the 17th Century, however, do we come across some material describing certain marine vessels. Between the 17th and 19th centuries there were exhaustive books written on the subject, including valuable engravings displaying the various types of vessels. In the 20th century, bulletins of museums contained information on the folklore aspects of marine vessels. Later, when economic and technical considerations came into prominence, more information on the subject could be gathered from technical journals and books.

Proceedings of the International Economic Conference on Small Craft Fisheries and Transportation (May 24, 1960, Hotel Waldorf-Astoria, New York), 24 pp., illus., printed in French and Spanish. Outboard Marine International S. A., P. O. Box 830, Nassau, Bahamas.

VIET-NAM:

Scientific Facilities and Information Services of the Republic of Viet-Nam, by John O. Sutter, Pacific Scientific Information No. 3, 37 pp., illus., printed, 50 cents. The Manager, Pacific Scientific Information Center, Bishop Museum, Honolulu 17, Hawaii, 1961.

VIRGIN ISLANDS:

Charting the Marine Environments of St. John, U. S. Virgin Islands, by Herman Kumpf and Helen Randall, Contribution 348, 8 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 11, no. 4, December 1961, pp. 543-551.) The Marine Laboratory, University of Miami, #1 Rickenbacker Causeway, Miami, Fla., 1961. By use of the diving sled in conjunction with serial photos, charting of the marine biotopes of St. John, Virgin Islands, was carried out expediently and accurately. The method of operation of the diving sled is discussed and pos-

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sible application to other phases of aquatic investigation are mentioned. The chart of the marine invironments of St. John is figured.

WATER POLLUTION:

Conference on Water Pollution Problems in Europe (Held in Geneva from 22 February to 3 March 1961), vols. I, II, and III, United Nations Publications, sales number 61.II E/Mim. 24, 626 pp., processed, $5.00. Sales Section, European Office of the United Nations, Palais des Nations, Geneva, Switzerland, 1961. The secretariat of the United Nations Economic Commission for Europe has assembled here the documents which were submitted to the Conference on Water Pollution Problems in Europe. The documents are assembled in three volumes and have been grouped according to the major items discussed at the Conference. Volume I contains documents dealing with the most urgent water pollution problems requiring attention; Volume II incorporates the papers concerned with administrative and legal aspects of water pollution control; and Volume III those which discuss the economic aspects of water pollution and the possibilities for international action through establishment of international water pollution control bodies and international exchanges of information. The report of the Conference and the list of participants are also included in Volume III.

WEATHER CHARTS:

Coastal Warning Facilities Chart, Cape Hatteras, N. C., to Brunswick, Ga., 1962, 2 pp., processed, 10 cents. Weather Bureau, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) This chart shows stations displaying small craft, gale, whole gale, and hurricane warnings, explanation of warning displays, and schedules of AM and FM radio and TV stations that broadcast weather forecasts and warnings.

Coastal Warning Facilities Chart, Montauk Point, N. Y., to Manasquan, N. J., 1962, 2 pp., processed, 10 cents. Weather Bureau, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) This chart shows stations displaying small craft, gale, whole gale, and hurricane warnings, explanation of warning displays, and schedules of AM and FM radio and TV stations that broadcast weather forecasts and warnings.

Coastal Warning Facilities Chart, 1962, Point Conception, Calif., to Mexican Border, 20M, 2 pp., processed, 10 cents, 1962. Weather Bureau, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Chart shows stations displaying small craft, storm, and hurricane warnings and explanations and schedules of AM and FM radio and TV stations that broadcast weather forecasts and warnings.

WHALES:

"Reproduction, Growth and Age of Southern Fin Whales," by R. M. Laws, article, Discovery, vol. 31, pp. 327-486, illus., printed. Jarrold and Sons Ltd., Norwich, England.

WHALING:

"Australia's 1961 Whaling Season," article, Fisheries Newsletter, vol. 21, no. 2, February 1962, pp. 15, 26, illus., printed. Commonwealth Director of Fisheries, Department of Primary Industry, Canberra, Australia. A summary of the whale catch from the five Australian shore stations during 1961. Includes data on location of catch; species, length, sex and maturity of whales caught; oil and byproducts yield; the Antarctic catch; and summary of the results of whaling from Australian stations since 1957.

"Pelagic Whaling in the Antarctic Season 1961/62," article, Norsk Hvalfangst-Tidende, vol. 51, no. 4, April 1962, pp. 156, 159-161, printed in Norwegian and English. Norsk Havlfangst-Tidende, Sandefjord, Norway. Discusses details of the catch and vessels participating in the 1961/62 Antarctic whaling season under the flags of Norway, Japan, the United Kingdom, U.S.S.R., and the Netherlands. Includes statistics showing the weekly harvest of blue-whale units with comparative data for the two previous seasons; average number of blue-whale units per catcher day by countries in the last four seasons; last season's catch and production of whale products together with the average catch per catcher day; production of whale and sperm oil of the individual expeditions for the last three seasons; and other pertinent data for the whaling fleets of the five nations.

WORLD TRADE:

The following World Trade Information Service Reports, published by the Bureau of Foreign Commerce, U. S. Department of Commerce, Washington, D. C., are for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 10 cents a copy.

Licensing and Exchange Controls, Republic of South Africa, Operations Report No. 62-12, WTIS Part 2, 12 pp., printed, March 1962.

YUGOSLAVIA:

Informativni bilten (Information Bulletin), printed monthly in Serbo-Croatian. Institut za Tehnologiju Ribe, P.O.B. 11o, Zadar, Yugoslavia. Contains, among others, the following articles:

_____, No. 1, January 1961. "Dark Spots in Fish Meat," by E. Androvic; and "On Retort Venting during Sterilization," by H. Lisac.

_____, No. 2, February 1961. "The Advantage and Quality of Canned Sardines Produced by IMC Machine," by N. Kucic; and "The Comparative Production of Solid Packs and Tunnyfish with Vegetable," by M. Lete.

_____, No. 3, March 1961. "Proposed Changes in Existing Standards for Fishery Products," by H. Lisac.

_____, No. 4, April 1961. "Some Problems of Soldering Fluxes," by K. Sepic.

_____, No. 5, May 1961. "Regular Repairs in Fish Canning Plants," by V. Perovic; and "The Big-

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gest Export of Fish Products in 1960," by D. Djurdjevic.

_____, No. 6, June 1961. "Seaming Machine Adjustment," by K. Sepic.

_____, No. 7, July 1961. "The Use of Juvidur Piping in Fish Canning Plant," by V. Perovic.

_____, No. 8, August 1961, "Electrical Installation in Fish Canning Plant," by V. Perovic.

_____, No. 9, September 1961. "Fisheries of Cambodia," by K. Sepic.

_____, No. 10, October 1961. "A Brief Resume on Fish Handling and Processing in Egypt," by M. Aref; and "Fisheries of Cambodia--II," by K. Sepic.

_____, No. 11, November 1961. "The Use of Decollage[1] Cans for Canned Fish," by V. Zaputovic and S. Mramor; "Soldered Joints on Tin-Plate Cans," by K. Sepic; "Soldering Fluxes and Their Influence to the Can Content," by S. Banjad; and "Quality Control of Tin Plate Cans," by D. Franolic.

_____, No. 12, December 1961. "Aluminum, its Characteristics and Application in Food Canning Industry," by V. Perovic; "Notes about Fishing Industry in Japan," by S. Bacic; "Cans Volume and Weight of Content," by S. Banjad; and "The Causes of Loosened Seams Formation on Square Cans during Sterilization," by H. Lisac.

[1] Can with soldered lid or cover.

Listings under Yugoslavia supplied by K. Sepic.

TROUT PLANTED BY PLANE

In the Mount Rainier National Park stocking program, 53,300 fingerling rainbow trout (weighing a total of 65 pounds) were stocked from the air in eight lakes, according to a report from the Portland Regional Office of the U. S. Bureau of Sport Fisheries and Wildlife. The fish, which were provided by Quilcene National Fish Hatchery, were placed in plastic bags, oxygen added, and the bags carried in cardboard cartons stacked in the plane. A private flying plane was engaged to do the job. The 3-hour job cost $90 for plane rental, a big saving over costs for pack stock and packers. The fish were released in excellent condition.

Editorial Assistant--Ruth V. Keefe

Compositors--Jean Zalevsky, Alma Greene, Helen Paretti, and Raie Carron

* * * * *

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Cover and p. 72--Arnie J. Suomela, American Embassy, Tokyo, Japan; pp. 6 & 7--Maine Development Commission, Augusta, Maine; pp. 28, 30 (fig. 2--left column), and 31--F. B. Sanford & C. F. Lee; p. 30 (fig. 2--right column), Fishery Technological Laboratory, E. Boston, Mass.; p. 33--R. K. Brigham, Woods Hole, Mass.; p. 45--Andrew L. Pinto; p. 60--Press Bureau, Danish Foreign Ministry; p. 84--Walter H. Stolting.

FISHERIES OF THE UNITED STATES, 1961

C. F. S. No. 2900, Fisheries of the United States, 1961 (A Preliminary Review), shows the landings of fish and shellfish in the United States by species, states, and areas; disposition of the landings; monthly catch and utilization; domestic catch from waters off the United States and on the high seas off foreign coasts; quantity of gear used and catch by gear; value of the landings by species; employment, fishing craft, and establishments engaged in the fisheries; per capita consumption; data on manufactured fishery products; value of industry and capital investments; foreign trade; available supplies of certain fishery products; and data on world fisheries. Included are a number of graphs on various phases of the fisheries.

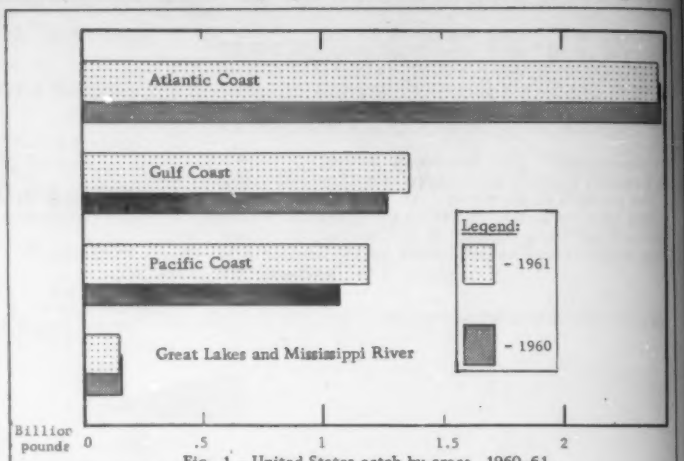

Fig. 1 - United States catch by areas, 1960-61.

Note: The catch for Hawaii is included with Pacific Coast.

Per capita consumption of fish in the United States increased to 10.9 pounds in 1961, a half pound more than in the previous year. This increase was divided equally between "fresh and frozen" and canned items.

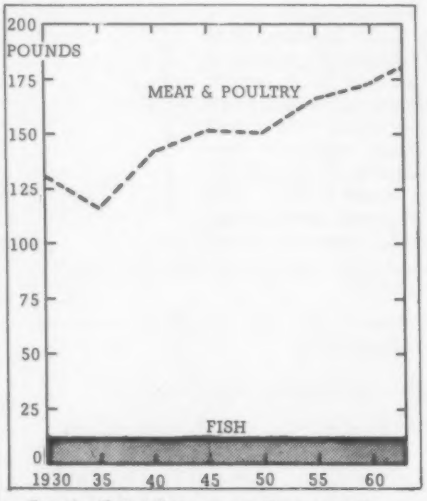

Fig. 1 - United States per capita consumption.

The supply of domestically-produced fresh and frozen products declined substantially, the report shows, even though the annual harvest was the Nation's second largest--5.2 billion pounds. Imports were up sharply due to increased receipts of groundfish fillets and blocks, and shrimp; however, both edible and nonedible imports established records.

The total amount paid to United States fishermen and vessel owners amounted to $358 million--nearly $4 million more than in 1960, but $15 million less than the record $373 million paid in 1958. The average price per pound was 6.94 cents, a low one due to the record catch (2.3 billion pounds) of low-priced menhaden.

San Pedro, Calif., was the leading United States fishing port in 1961 with respect to both volume and value--416 million pounds with an ex-vessel value to the fishermen of $36 million.

The figures on the 1960 world catch--a record 83.2 billion pounds--recently compiled by the Food and Agriculture Organization of the United Nations are included in the report. Five countries accounted for well over 50 percent of the total catch--Japan (16.4 percent), China (Mainland) (13.3 percent), Peru (9.4 percent), U.S.S.R. (8.1 percent), and the United States (7.5 percent).

Copies of C. F. S. 2900 are available free from the Office of Information, U. S. Fish and Wildlife Service, Washington 25, D. C.